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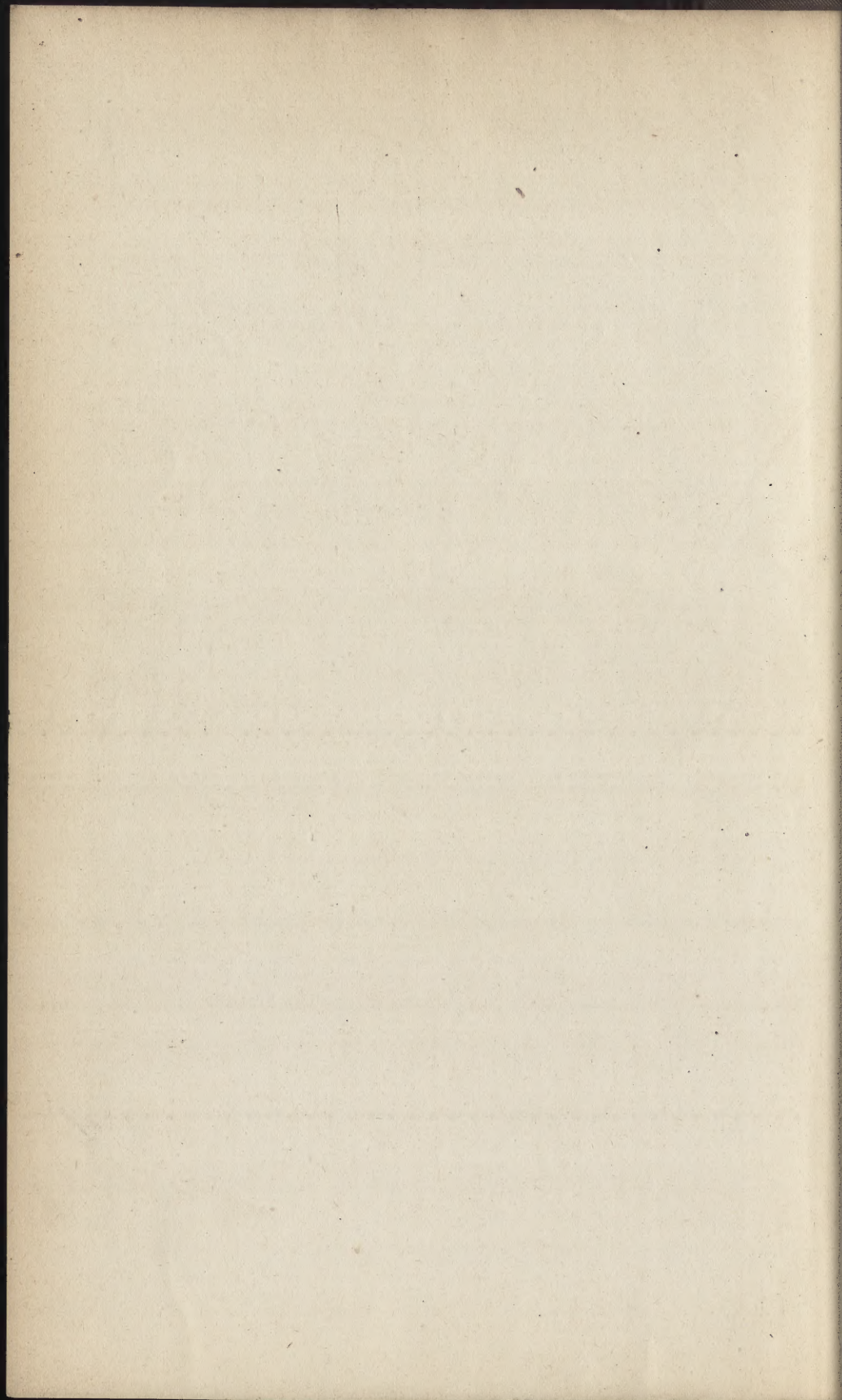
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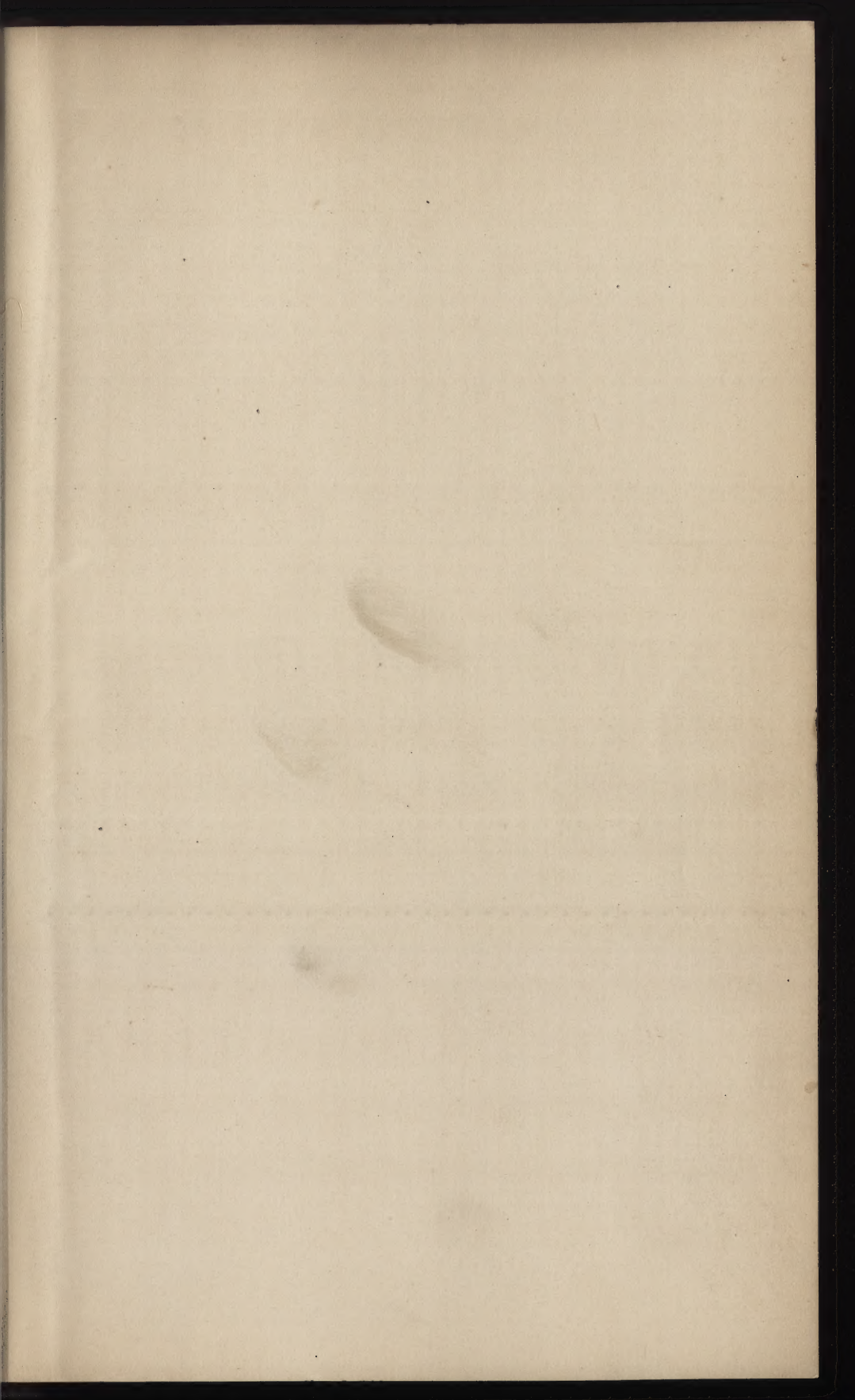
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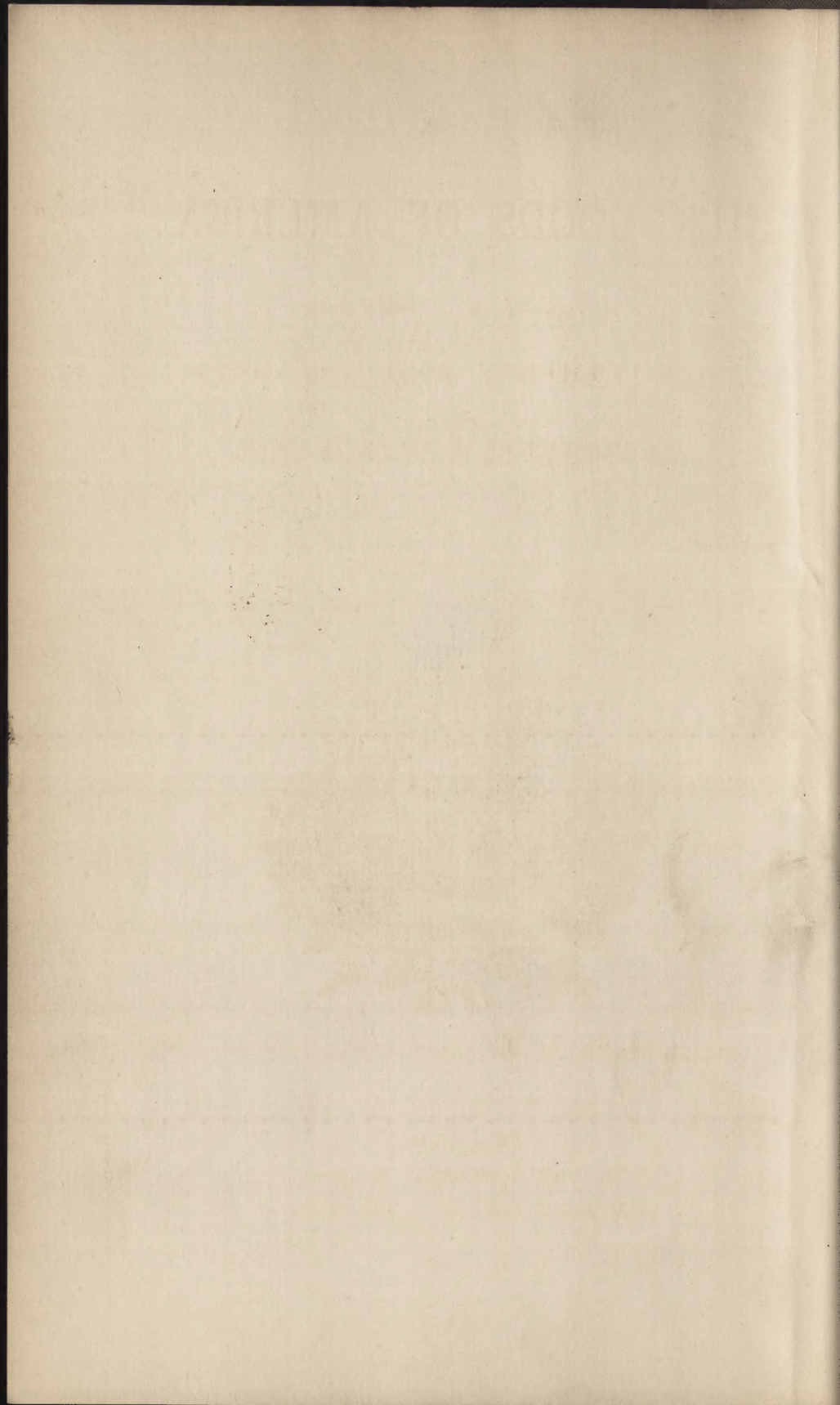










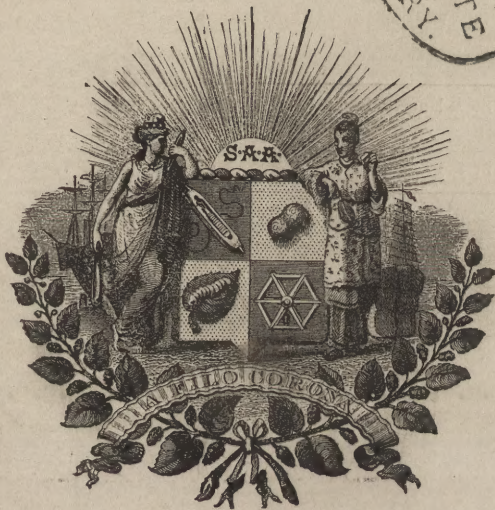




THE  
SILK GOODS OF AMERICA:

A BRIEF ACCOUNT OF THE RECENT  
IMPROVEMENTS AND ADVANCES  
OF  
SILK MANUFACTURE IN THE UNITED STATES.

FRANKLIN INSTITUTE  
BY  
WM. C. WYCKOFF



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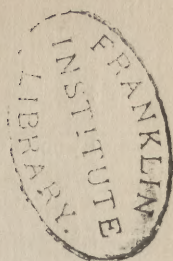
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## PREFACE.

The manufacture of silk goods in this country has been increasing in extent and variety for several years. In a few branches of this industry, the articles made here have so completely met the needs of the home market that importations from abroad have almost ceased. In certain other branches, our factories have barely effected a beginning, and the market is still controlled by imported goods. The great bulk of our silk manufacturing interests are in positions between these extremes, holding a tolerably secure footing on their own soil, but not yet freed from foreign competition.

Meanwhile the general public—the consumers of silk goods—have been slenderly informed concerning these changes, and especially as to the improvements in manufacture. Everybody knows that silk goods, both domestic and foreign, are cheaper now than formerly; but comparatively few persons are aware that the American goods are better as well as cheaper. That there is much general ignorance on this subject, may be shown in many ways; perhaps the most striking illustration is presented by the fact that nearly the entire product of some of our silk mills is still represented as of European make, in the final sales of the retailer to the consumer. In fact, our manufacturers have been obliged to make better fabrics than their foreign rivals, in order to attain standing in a market where imported articles held a long-established reputation.

It is time that the actual merits of American silks should be laid before the American public; and that in so doing, the whole trade should be

represented, rather than its individual members. With the hope of partially accomplishing that object, this book has been written. The field is a wide one, and the attempt is new ; hence it will not be a matter of surprise if the harvest of facts has been imperfectly gleaned. In presenting this volume to the public, the author would be better satisfied with his work if it were nearly as excellent as the fabrics it describes.

W. C. W.

44 HOWARD STREET, N. Y.,

*July, 1879.*





## THE SILK GOODS OF AMERICA.

### I.

#### *Introductory.*



ENTURIES have been required for the development of the silk industry of Europe. The manufacture in this country dates its early successes nearly forty years ago, but its best work has all been done within a comparatively recent period. We shall have occasion in the following chapters to call attention to great improvements in the art of making silk goods, that have taken place within even four or five years.

Such progress is the more remarkable as occurring during a time of general commercial depression, while prices of all kinds of textile fabrics were declining, and while the demand for luxuries—in which all articles of silk are usually included—was notably diminished. Under these circumstances, the volume of trade was not greatly enlarged, but goods that were better in every way, and of a far higher and more difficult order of manufacture, were produced.

Many causes have combined in bringing about this result. The war of the rebellion stimulated most of our manufacturing interests by checking importations of foreign goods. During the period of inflated prices that followed, many new factories were built and the facilities for work were greatly extended. Direct trade with Asia across the Pacific Ocean and by rail from San Francisco, brought Chinese and Japanese raw silks to this market, of better quality and of lower cost than before, placing us more nearly on a level with Europe in respect to supplies of the raw material. When the so-called "hard times" came, people in general reduced their purchases of the more costly foreign silks. European manufacturers strove to meet the change by making cheaper and inferior goods; our manufacturers tried to catch trade by making better fabrics, since there was at all events no profit in the cheaper lines. The Centen-

cial Exhibition did good service by showing to hundreds of thousands of our people something of the advances in manufacture, and it helped to develop a spirit of patriotism that appreciates goods made here, as at least equal to those that are imported.

Meanwhile the introduction of the power-loom had started a general change and overhauling of the machinery employed. Our countrymen have been much more prompt than Europeans in this matter, substituting steam-driven machinery for the hand-loom upon each new kind of goods as fast as they were demanded. We now make all sorts of fabrics on power-looms, from gossamer veiling to upholstery brocatelle, and the uniformity of goods thus made, is, in itself, an improvement. The workers in the mills have also been learning, so that they waste less silk, and perform their labor more efficiently, in connection with the new machinery.

The most important of the causes which have led to the improvement of our silk goods remains to be noticed ; it is the continuance of the tariff policy of the Government. If that had vacillated during the last ten or fifteen years, we should have had no story of improvement to tell.

The rapid changes of fashion, although at times inflicting loss on our manufacturers, are probably on the whole, a benefit. These changes compel improvement in the art. Any new, finer, higher grade of goods obliges the maker to perfect his labor as well as his machinery. Our people are also more enterprising than their foreign competitors in making changes of machinery required for novelties, and thus meeting the demand while a fashion is at its height. It is scarcely too much to say that extensive alterations are made in a week or two in our mills, which would not be effected for months at Lyons, St. Etienne, or Crefeld.

This enterprising haste to meet new requirements of fashion is characteristic of our manufacturers, and, not being confined to a few, results in sharp competition between them. Consequently the prices of these goods are not exorbitant. A different result takes place in a market that is solely dependent upon foreign goods, where one or two importers who happen to obtain just the things that are in demand, can safely insist upon the very highest prices.

It will be noticed when we come to particulars concerning various kinds of silk goods, that, parallel with their improvement in quality and the increase of their manufacture in this country, there has been a steady decline in their cost to the consumer. This is the legitimate result of



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healthy competition here. It furnishes an unanswerable argument in favor of a tariff policy which protects home industry.

Since, however, our manufacturers have been continually obliged to sink money in enlarging their facilities, improving their machinery, and educating their work-people for their tasks; and since prices for all kinds of silk goods have steadily declined, it follows that the business has not been largely profitable. Manufacturers have mostly held their own, but have not reaped riches. The great benefits have accrued to two classes—the consumers, who have obtained better and cheaper goods; the operatives, who have had steady employment. It is pleasant to know that the work-people who have thus been benefited are of a higher class than the average. The work is cleanly, comparatively light, and is not hurtful in any way to the operative. Hence it happens that respectable parents who would object to having their families employed in other factories, are glad to have them busy in the silk mills. The contrast between the laboring classes of this country and of Europe is nowhere more striking than in this industry.



## II.

*Raw Silk.*

THE raw material of which silk goods are made, is not produced in this country. This has been the case since 1840, with the exception of a few scattered experiments of little profit and no commercial importance. There had been some business done in silk culture for many years before the date named, but it was swept out of existence by the ruin which followed great speculations in mulberry plantations and a widespread blight of the trees. In a large portion of the United States, healthy silkworms can be bred and reared by anybody who has time, patience, and mulberry trees at command. The sole difficulty is to dispose of the cocoons at a profit. The manufacturer of silk goods wants reeled silk, not cocoons. Reeling is the most important process in preparing the raw silk, the value of that article depending largely upon the way in which the reeling is performed. It is best conducted at a filature where cheap but skilled labor can be applied. There is no filature at present in this country.

Whether, under certain favoring circumstances, it would not be practicable to produce silk profitably in the United States, is an open question. A great deal has been said and written upon the subject. The most reasonable conclusions that have been reached, are to the following effect: It is not at all advisable to undertake silk-culture anywhere on a large scale. The industry is not likely to be profitable, even though conducted in a small way, if the culturist must first be at a considerable outlay for land and mulberry trees, or has to hire labor specially for the undertaking. If the women of a farming household could, in addition to their usual labors, rear silkworms; and if a sufficient number of families in a neighborhood were engaged in the business to produce cocoons enough to keep a filature busy, then capital could be easily found to build a filature and train its operatives. In any case it is not to be expected that the business would be highly remunerative,



though it might, if skillfully conducted, add a little to the income of many households in the Middle, Western and Southern States, after the first difficulties were overcome.

Of the raw silk now used in manufacture in this country, about twenty-four per cent. is shipped from Europe and the rest from Asia ; but some part of that imported from England, is of Asiatic origin. In Italy and France there are two classes of silk produced : "country silk," which is reeled in households and by primitive methods ; "filature silk," which has been reeled with skill and sedulous care in the filatures. The "country silk" is, of course, inferior, and very little of it is sent to this country, because it requires much labor to be expended upon it in manufacturing processes. The factories of Europe, where labor is cheap, can use inferior silk to better advantage than is possible in America. The silk produced in China is in the first instance, "country silk ;" to prepare it for this market, it has to be re-reeled. The Japanese now have filatures, and send us silk that is equal to the best of European. In Asia, as in Europe, the coarser and inferior silks are kept at home ; America gets the finest and best.

This result, as to Asiatic silks, has been slowly brought about. The Chinese are a people who cannot be hurried, and many years and no little effort were required to impress upon them the necessity of re-reeling to suit our market. The reels for this purpose were in the first instance made here and sent out to China ; their use was brought about by the urgent and repeated representations of American merchants there. The re-reeling is, however, not always well done. Aside from carelessness, which alone would deteriorate the value very largely, there is considerable imposition practiced in adulterating Chinese raw silk. Sugar, salt, rice, and acetate of lead are mentioned as among the substances used for adulteration. At intervals there have been brief periods when there was more care and less fraud in Chinese re-reeling ; at present there is a season of backsliding, and the "raws" are about as bad as they have ever been.

The Japanese have taken a different course. Within four or five years they have established a number of filatures, where excellent work is performed. The government has encouraged the work, and owns one of the filatures, where skilled operatives from Europe were employed at first, and native labor has since been educated. The result has been that while the

Chinese have improved a very little, the Japanese have advanced with singular rapidity, and their silk has taken rank with the best in our market. No fraud is attempted by adulteration in Japanese silks, and though there is, of course, some variation in their quality, their tendency is toward a uniformly higher standard. The amount of Japanese silk sent to this market is steadily increasing.

In European raw silk the variations of quality have been less important than those of quantity. The silkworm is a prey to numerous maladies, and is especially sensitive to weather changes during the brief season of rearing. The differences of product in good or bad years are enormous. The following table will illustrate these variations, and also indicate the striking effect of a disease called *pébrine*, which began to exhibit its force in 1864 :

## ANNUAL SILK PRODUCTION IN ITALY.

KILOS.			
Before the malady,	- -	3,710,000	
1863,	- - - -	2,308,000	Diminution, - - - 38 per cent.
1864,	- - - -	1,731,000	" - - - 53 "
1865,	- - - -	1,762,000	" - - - 52 "
1866,	- - - -	1,800,800	" - - - 51 "
1867,	- - - -	2,000,000	" - - - 46 "
1868,	- - - -	1,900,000	" - - - 49 "
1869,	- - - -	2,150,000	" - - - 42 "
1870,	- - - -	3,180,000	" - - - 14 "
1871,	- - - -	3,473,000	" - - - 6 "
1872,	- - - -	3,125,000	" - - - 16 "
1873,	- - - -	2,960,000	" - - - 20 "
1874,	- - - -	3,430,000	" - - - 7 "
1875,	- - - -	3,073,000	" - - - 17 "
1876,	- - - -	1,010,000	" - - - 72 "
1877,	- - - -	1,853,400	" - - - 50 "
1878,	- - - -	2,650,000	" - - - 28 "

As there has been a gradual increase of consumption of silk goods throughout the world, it may be fairly inferred that a like increase of the production of raw silk has taken place. But the variety in the size of crops in different countries in successive years has been so great as to mask the total increase. These fluctuations, carrying prices with them, so that the material is worth twice as much at one time as at another, are most pernicious to manufacturing interests. It is a singular fact that the



market for goods sympathizes only to a small extent with that of the raw material. When the value of silk doubled during the speculation of 1876, the price of a silk dress was scarcely raised at all. As a rule, the advance of cost of raw silk, when it does take place, is exceedingly rapid; its fall is apt to be equally precipitate. While the high price lasts, it is a terrible oppression to the small manufacturer. When twice as much money is required to buy material, he can only purchase half as much, either for cash or on credit; and for a while at least, he must calculate to make goods at a loss. If the changes in value were at all permanent, the trade could soon be accommodated to them; but a great speculation in raw silk is like a cyclone of wind and rain, that brings destruction instead of fertilizing the earth.

A marked change in the currents of trade has taken place since the opening of direct routes to Asia. In the raw silk business this has resulted in transferring to France the bulk of Asiatic imports, which formerly went to England. There are, however, great facilities for handling, selling and buying raw silk in London, and that city still holds eminence as a silk market. The amount of raw silk consumed in this country is not large enough to exercise control in foreign markets, and our prices are regulated by those of Europe. We can and do, however, purchase as cheaply in Asia as European buyers. Raw silk being a costly article of small bulk, the freight on it adds little to its cost, though to reach us it must come half way around the world. But the new routes of commerce bring us silk more quickly than in former years, making it cost less in insurance, in interest on capital, and in the risk of change of price while in transit. The importation of raw silk into this country was greater last year than in any preceding year, as will be seen from the following figures of receipts at United States ports:

	POUNDS.		POUNDS.
1870, - - - -	738,381	1875, - - - -	1,330,482
1871, - - - -	1,291,675	1876, - - - -	1,252,312
1872, - - - -	1,244,193	1877, - - - -	1,007,504
1873, - - - -	831,728	1878, - - - -	1,590,663
1874, - - - -	806,774		

## III.

*Sewing-Silk and Machine-Twist.*

THE manufacture of silk thread in this country is a distinct branch of industry, which has wholly outgrown foreign competition. Its commanding position has not been, however, easily attained. A deep-rooted prejudice in favor of Italian sewing-silk was implanted in the breasts of our countrywomen. For a long while the products of New England mills could only be sold in the partial disguise afforded by labels and wrappers in some degree resembling those of foreign goods. To meet this prejudice, the leading manufacturers adopted as trade-names for their goods, words newly compounded for the purpose, and having Italian terminations. A curious memorial of that era is carefully preserved in the counting-room of a large East India importing house in this city. The relic occupies a space of 65 by 40 inches, and is quaintly painted in colored letters. It is a Declaration of Independence on the part of the silk manufacturers of this country. In no branch of the industry has the spirit of this declaration been lived up to so completely, as in the sewings and twist trade. Let us hope that in all other departments there may be before long a similar compliance with this most excellent resolution, which reads as follows :

1843—Oct. 13th—RESOLVED, that this Convention learns with deep regret that, as in other kinds of AMERICAN MANUFACTURE, it has hitherto been deemed necessary to attach the FOREIGN LABELS, English, French and Italian, to the excellent sewings and fabrics of our own SILK MANUFACTURERS, in order to command a ready sale in our city markets, superior as these sewings and fabrics are known to be, in strength, texture and durability to the foreign articles.

And we earnestly recommend to OUR SILK MANUFACTURERS, now in the infancy of our enterprise, to set a GOOD EXAMPLE to their brethren in other manufactures, by attaching *their own name to their own goods.*



The trade-marks of the four most prominent silk manufacturers of that day, ornament the corners of the board which bears the foregoing legend.

At first, American sewing-silks were made exclusively in skeins, and they were introduced by being carried from door to door and sold to actual consumers. The methods of testing the qualities of the silk were primitive. The buyer would pull and hold up a thread to ascertain whether it was likely to kink, for the sewing-silk of that day was not always properly twisted. Then followed an examination by drawing it over the finger-nail, to detect the dirt and slugs which were not rarely left in inferior grades. The final test was by comparison with some thread already known and approved. This was effected by taking a thread from each of the two kinds to be compared, and crossing them so that each caught the other in a loop. A vigorous pull then broke one or the other, usually at the point of crossing, and was regarded as determining which was the stronger. Even as a comparative test, this method was not very trustworthy, since a hard-twisted thread would cut one of looser texture, even though the latter might be somewhat the stronger.

At a later period it became customary to test sewing-silks by means of a clumsy machine; a sort of steelyards having a heavy ball attached to a lever. According to the strength of the silk, it was capable of pulling the ball so that a pointer moved through a less or greater segment of a circle. This contrivance has been greatly improved. The pointer now remains at the place on the scale where the pull breaks the silk, and hence fixes the record of strength. The whole instrument is far more compact than formerly; it is usually accompanied with a winding-machine, and the two together occupy a box less than a cubic foot in size. This box forms an indispensable part of the equipment of the traveling agent of a sewing-silk manufacturer.

The sewing-machine was the means of a revolution in this branch of business. The consumption of thread of all kinds has been enormously increased by that invention, and sewing-silk shared in the enlarged demand. But when sewing-machines were first introduced, the silk thread then made was not specially adapted for use upon them. The shuttle of the machine did not always pass through the loop that was carried down by the needle, and hence a stitch would be dropped at intervals. At length, after many experiments, the discovery was made that this defect could be obviated by making the thread in a different way. The newly-

invented thread, which serves its purpose perfectly, was denominated "machine-twist," and it still retains the name, which is sometimes abbreviated to "twist."

The distinction between "sewing-silk" and "twist" is of kind as well as of degree. Sewing-silk, often designated simply as "sewings," consists of two threads twisted from left to right; that is, it has the twist of a right-handed screw. Machine-twist is made of three threads twisted from right to left, and is usually of a harder, closer twist than sewings. The latter may be put up either in skeins or on spools; machine-twist is always spooled. While sewing-silk cannot well be used for the sewing-machine, "twist" can be employed for a great variety of purposes besides that for which it was devised; it has taken the place of sewings to a considerable extent, and this substitution is still going on in different manufactures. Merchant-tailors and other makers of clothing are now almost the only users of skein silk.

The real excellence of thread and its service to the consumer, depend in no small degree upon its regularity of size. Elsewhere in this volume are specified the chief causes which occasion a want of uniformity in the thickness of fibre of even the best raw silk. The first thing done by our manufacturer after opening his bales, is to sort this raw material into four or five lots of different sizes of fibre. To illustrate the range of variation, we may say that of raw silk of the finest sort, five fibres may go to make one of the three strands that are put together in a thread of machine-twist; while of coarser raw silk, two fibres would make the thickness of one such strand. If composed of thick and thin fibres mingled, the strands would not twist uniformly. Silk of thin fibre is comparatively the most desirable. For obvious reasons, the greater the number of fibres composing a thread, the better it will be in respect to uniformity, roundness, smoothness, and probably, strength.

After being sorted in approximate sizes by skillful hands, the thread is duly twisted and wound upon bobbins. By an ingenious arrangement of machinery that need not be described here, the thread is cut off in even lengths of, say  $333\frac{1}{3}$  yards—that is, three lengths to 1,000 yards—and these lengths are temporarily made into hanks, usually called "skeins," to be weighed or "drummed." Now comes the nicety of the business; every skein is weighed with the utmost accuracy, the most delicate weights and weighing apparatus being employed. As the skeins are weighed,

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they are sorted accordingly, upon a long series of hooks, each hook taking all the skeins of a given weight as registered in ounces and hundredths of an ounce. In adding dyestuffs, an allowance has to be made for the difference thus occasioned in the size of the thread. Where a twist of different character is to be employed, that too is to be considered as an important element in the size produced. These allowances, in the best factories, are not mere guess-work or rule of thumb; they are absolutely calculated on mathematical principles.

As was before stated, the consumer of the silk gets the benefit of all this sedulous care. The reason why two large knots are usually to be found in each spool of a thousand yards of otherwise perfect sewing silk or "twist," will now be apparent; they join the skeins. It would be far easier for the manufacturer to make each spool-full without a knot; but then the thread of a single spool would itself, probably, be of uneven thickness.

Finally, the spooled silk is put up in one of two grand divisions; either as yard-goods or as ounce-goods. In general it may be stated that the yard-goods are sold by the yard, irrespective of weight. These constitute the majority of the spools sold at retail by dry goods and fancy goods dealers. The ounce-goods are sold by weight, which is stated on the spools in ounces and ounce-fractions; the thread is mostly used for manufacturing purposes; and the makers of shoes, corsets and clothing prefer silk thus put up, because it is on large spools that do not have to be so frequently replaced as smaller ones, on the sewing machines.

As long ago as 1867, one of our manufacturers conceived the idea of making a "pure dye" machine-twist. At that time there was no definite understanding between members of the trade as to what purity in dye should signify. All agreed that the making of heavily-loaded silk should not be encouraged, but there was a notion that the thread might receive some benefit from dye which had astringent properties, and that if less than a certain amount of this dye were used, the silk would be weaker. The reasoning which led to an opposite conclusion was founded on observing that coarse white (silk) thread was preferred by the makers of fine shoes, in sewing up the backs, it being found better for this purpose, and more easily worked, than black silk. Evidently, more silk will be supplied to a given thickness of thread, where there is little dyestuff than where there is much; the needle will be more nearly filled by silk



alone, and hence the hole made by the needle (which is necessarily larger than the thread) will receive more silk. The hole will be better filled with a material which expands as silk does, than if part of the thread were mere dyestuff. Hence superior work might be produced with pure dye silk, even if the comparative strength of the thread were thrown out of the question. Careful experiment showed that after removing the natural gum from a pound of raw silk, and thus reducing it to twelve ounces, an ounce, or at least three-fourths of an ounce of dye must be used to render the silk of a satisfactory black. There is still some difference of opinion in the trade as to whether one ounce of dye to twelve ounces of pure silk, or four to twelve, will give the most serviceable thread in proportion to cost. Of these two kinds the first is known to the trade as "13-oz. dye" or "pure dye;" the second as "16-oz. dye" or "standard." Into the merits of this controversy we do not propose to enter. In the "standard" goods, the dyestuff exactly replaces the natural gum which has to be removed before the silk will receive color, and it is argued that the dyed thread is therefore just as strong, weight for weight, as it was when raw; perhaps even stronger, if the dye has the effect on silk that tanning does upon leather.

The standard of purity of American sewing-silk has been very conscientiously adhered to, and this, no doubt, largely helped in the struggle to obtain the market originally held by foreign thread. Quite recently there appeared in an English newspaper, published in a town where there are still the remnants of a considerable silk industry, an urgent appeal to the manufacturers of silk thread in that locality, pointing out the injury that over-weighting had done to their trade, and suggesting the adoption of the American standard of dye. In that essay it was indicated that from 18 to 25 ounces of thread were usually made in England from a pound of raw silk, and we may well believe that this estimate is not too high. Scarcely any of the European thread equals, and none of it excels our own, in purity.

When manufacturers had determined to sell a pure or standard dye silk, a necessity arose for convincing customers of the superior value of the article, since it could not be afforded for sale at the price of heavily weighted thread. A system was at last devised which has gradually recommended itself to both makers and purchasers, and is now generally accepted by the trade. It consists in fixing the value of any given specimen of silk accord-

ing to its length and strength. It is evident, if we have a thread of such strength that it will pull a weight of five pounds before breaking, that the same thread if doubled will sustain ten pounds. Therefore 1,000 yards of thread of 5-pound strength is exactly equal to 500 yards of 10-pound strength, or to  $333\frac{1}{3}$  yards of 15-pound strength, and so on. This equality can be easiest shown by multiplying the strength and length together, which will in these instances give the same product, 5,000. It is assumed that the figure obtained by such a multiplication will always serve as a ratio of value. Let us apply this ratio to fix prices for a heavily weighted thread 1,000 yards long; we will say, silk that has been doubled in weight by the process of dyeing. If it is sold by the yard, the price need not be changed, since the number of yards remains the same; the maker gets the same sum of money and the buyer gets the same amount of real silk as if there had been no adulteration in the dyehouse. If the thread be sold by the spool, the bulk will be doubled by the extra dye, two spools will be made of it instead of one, and (estimated by the ratio) each spool will be worth half as much. If again the thread is sold by weight, only half the price can be demanded per ounce, as compared with a standard article.

The trade having widely recognized the truth of this theory, it is customary in making a considerable sale of silk thread, for the salesman to bring out his little testing-machine, show the length per spool in yards and the strength in pounds, multiply the figures thus attained, and exhibit them as evidence that the goods equal or surpass a given standard. If two samples are to be compared, the rule of three is usually employed, thus :

	PULLS.	LENGTH.	OFFERED PRICE.
SAMPLE A.	5 pounds.	1,000 yards.	\$8.00 per dozen spools.
SAMPLE B.	$4\frac{3}{4}$ pounds.	950 yards.	\$7.50 per dozen spools.

Which is the cheaper? The problem is worked as follows :

$$(5 \times 1,000) : (4\frac{3}{4} \times 950) :: \$8.00.$$

This gives as an answer, \$7.22; showing that the price at which the sample B is offered is about four per cent. higher than that of A. The fairness of this system is indisputable; the purchaser certainly has no reason to complain, since, by it, a manufacturer who overweights his silk gets nothing for the superfluous dyestuff. Its effect is to encourage the making of the purest grades of silk, by securing for them a proportionate

price. Obviously, if loaded silk is sold at the price of that which is pure, the purchaser buys mere dyestuff—metallic salts—at the price of and instead of silk. In general, white and colored thread is not loaded; but black can be adulterated by an unscrupulous maker, to the extent of trebling its weight. The system of comparison above described also serves admirably in determining the price for thread of different degrees of strength and fineness. The range in this respect is very wide; there is machine-twist made (for the use of harness and trunk makers, and other workers in leather) that will pull 30 to 35 pounds; but its length to the ounce may not be more than 175 yards. In the other extreme, there is thread for stitching ladies' ties and light work in general, that will measure 3,000 yards to the ounce, but is scarcely capable of pulling two pounds. Some of the consumers of machine-twist have discovered, that in an emergency, they can obtain a thinner silk thread by untwisting the machine-twist, and using its three separate strands, after waxing them slightly. Before closing our account of the method of testing by length and strength, we should mention that it does not distinguish between thread that is perfect in finish, color and cleanliness, and that which is in such respects inferior; hence it can only apply after making allowance for any existing differences of that kind.

Endeavors have been made to introduce for popular use, chemical methods for determining whether silk thread is heavily weighted. In the hands of a chemist such tests should be conclusive, but quantitative analysis is not easily performed by those who are unskilled in the arts of the laboratory. Excessive adulteration can, however, be readily detected by burning the thread and observing its ashes, or by rubbing it, after moistening, between the fingers. Less reliance can be placed in tests depending on the solubility of dyestuff in an acid.

The colored silk thread produced here is not surpassed in delicacy, brilliance, and permanence of hue. The variety of tints that may be called for, is almost infinite, and the manufacturer is obliged to sort and classify different shades, with painstaking accuracy. This is, in at least one instance, effected on a strictly scientific basis. The text-books of science did not afford the data for such a classification, and the manufacturer deserves credit for working out this difficult problem by his own research and study. A brilliant display of colors rendered the cases of sewing-silk and twist most attractive objects in the Centennial Exhibition.



## THE SILK GOODS OF AMERICA.

But various as may be the hues which each mill turns out in the regular course of work, a further variety is called for by customers who wish to match new or special shades of goods with similar thread. A few days suffice for this purpose. If we were dependent upon European mills for silk thread, and had to send to them to match a given shade, the probability is that the color itself would be out of fashion before the thread of the required tint could be ordered, made, and imported.

Improvements have been made from time to time in the machinery for producing sewings and twist. Of these we can only offer a brief notice, since a technical description might be wearisome. There is a useful contrivance called a "stretcher," which pulls out the component strands of a thread so that they are brought to an even thickness. This is of importance, because if there is one strand thicker than another, it will "ride" in twisting, and the thread will be defective. It is claimed by those who use the stretcher that no thread made with it is of second (or inferior) quality, so far as the work of the mill is concerned. Before the stretcher was used, a considerable amount of labor had to be employed in cutting out threads of irregular thickness and tying them on bobbins where they would be better matched; all this, it is said, is now avoided. The "cleaner" in ordinary use consists of two edges of metal, between which the thread is passed, to catch fluff and slugs. There is a new cleaner, in which the thread goes around a series of spindles, so as to rub against itself, and by such friction get rid of its superfluities. There are measuring machines attached to various parts of the machinery; one of these, in spooling ounce goods, determines exactly the length of every ounce of thread; so that the silk on each spool is of definite size, length and weight.

The spools themselves are greatly improved. One manufacturer, who makes his own spools, believes that he can identify them anywhere, without looking at their labels, as he claims that there is a certain finish and smoothness about them which no other spools possess. Near the factory there are hundreds of cords of white birch stacked under cover, to dry. The wood comes from the forests of Maine, and requires one or two years of seasoning before it can be converted into spools. Printing upon the spools instead of upon labels to be attached to them, is now generally preferred. Three or four different patents have been issued for inventions to meet this object. A machine costing \$650 to build will print about

100 spools in a minute ; they pass through a hopper, are centered by a rod, and then the printing-dies stamp in the lettering. Good spools are a necessity to secure the best work from the sewing-machine ; if, for instance, the wood shrinks after the thread is wound upon it, the delivery will be irregular. The superiority of spools made in this country has attracted the attention of European manufacturers, and some of them have spools for their own goods made and printed here.

A curious custom has grown up in the sewings and twist trade, of presenting cabinets to large buyers of goods. These structures are often elegant and costly ; they are used to display the goods, and are elaborately made of fine woods and plate glass, with numerous drawers and compartments. Some of the handsomest have cost \$350 apiece, and several have been presented that were worth \$250 to \$300 each ; a \$50 one is not at all unusual. These values, it will be observed, are the cost of cabinets to the silk manufacturer, who orders a number at a time ; a single one made to order would be a much more expensive piece of furniture. There is a tacit understanding with the recipient of such a gift that he will continue to buy goods from the manufacturer who presented it ; to use it for goods from any other mill would be deemed dishonorable. The cabinet is given on the first sale to a new customer, and its value may be as much as ten per cent. of the goods purchased on that occasion ; but the cost of these presents on the part of a large manufacturer is not estimated as over  $1\frac{1}{2}$  per cent. of his total sales. Nevertheless, the burden of this custom is a heavy one ; a single firm estimates that it has expended \$150,000 in such gifts. The practice is not wholly indefensible, since the goods would in any case have had to be put up attractively, and the cabinet, in a large dry goods house, serves the purposes of an advertisement. There are many indications that extravagance in cabinets has passed its highest point, and the custom might be entirely abolished if manufacturers would make and keep an agreement on the subject.

The competition of the makers of silk thread is, however, exceedingly keen, and agreements between them are short-lived. Although they have entire control of the home market, and have excluded the foreign rivals who once had possession of the field, our manufacturers have never been able to obtain high prices for their goods, or secure more than a slender margin of profit. The consumer has had the chief benefit from every improvement in this branch of industry, and prices are lower

at present than they have ever been before. Small as are the profits, they seem sufficient to turn the mill-wheels. The large concerns say that the only reason they can do business at a profit, is because their trade is extensive and varied enough to enable them to work up all their material into the sizes that the raw silk is best suited for, instead of being obliged to average it in favor of sizes that are most in demand ; thus they make a more uniform thread, and to better advantage, than where the sizes are not matched so accurately. On the other hand, the proprietors of the small mills claim that by more careful economy, lighter expenses, and less of costly display, they can compete with their mighty rivals.

When it is considered that sewings and twist are, in the main, staple articles, little dependent upon changes of fashion ; that the duties upon them are one-third less than on silk fabrics ; and that their raw material—which is the larger part of their cost—is brought hither from the other side of the world, it seems surprising that European manufacturers, with far greater advantages for making the goods, and with a long-established reputation for their sewing silks in this country, should have utterly lost our market. But nobody who compared the displays of our own and the foreign spooled silk at the Centennial Exhibition, could help noticing the inferior appearance of the European goods. They looked coarse. The colors were out of date, or wanting in taste. The thread showed the need of the modern improvements. Probably the chief reason why Europeans have in this instance lost their trade here, is because of the greater quickness of our people in adopting improved methods of manufacture, such as, for instance, making "twist" for the sewing-machine. Changes that might seem insignificant in a coarser kind of industry, in this become important ; an alteration of method or machinery that prevents a little waste may make just the difference of profit or loss in the production of a mill. Our manufacturers use better raw material, adulterate it less, and employ better machinery in making the thread than ever before. The writer is assured by one of our largest concerns that they are preparing to sell American machine-twist in Europe, being convinced that this can be done at a profit.





## IV.

*Weaving—Preparatory Processes.*

AMERICAN manufacturers are obliged to use the best of raw silk, as a simple measure of economy. To explain this singular fact, we must give some details. The material which comes to this country from China, Japan, Italy or France, for the use of our manufacturers, is known as "raw-silk." It has been reeled from cocoons, and perhaps re-reeled, before it was started on its ocean voyage. There are great differences in the quality of cocoons, dependent upon the breed of the silk-worms, the climate in which they are reared, the food and care they receive, and other circumstances affecting their health. The irregularities thus occasioned in the quality of the silk may be largely avoided in the countries where the silk is reeled, if the cocoons are very carefully sorted before reeling, so that all of each grade of silk shall be brought together. There is found on the outside of every cocoon a considerable amount of light thread, containing more or less roughness and impurity, and in general, unfit for reeling. This ought to be stripped off entirely, and accounted as "waste silk," but some of it occasionally finds its way to the reel, in inferior grades of the raw material. When a filament that is fit for the reel has been reached, it is found that this filament is itself uneven in strength and thickness, the exterior layers being weaker and thinner than those nearer the insect. It is the business of the experienced reeler to put a thread of an even thickness and strength upon his reel. To do this, he may have to unite four, five or more filaments, from different cocoons, in a single thread; the number of filaments depending on their comparative thickness and the size of thread required. So much, indeed, depends upon the skill of the reeler, that we may be perfectly certain that a careless or inexperienced hand will produce thread which varies in thickness so as to be of little value, even if it does not contain dirt, rough knots, or tangle. At the best filatures, all that is possible is done, by watchfulness and care, to avoid these defects, and produce thread of approximate uniformity.

"I date," says one of our manufacturers, "the first great step in recent improvements, at the opening of the overland route, which brought us raw silk direct from Asia. Before that time we got from there only the silk which Europe rejected—the refuse of the markets. Since that route was opened, we have had the choice of the market, and now the very best comes to this country."

The contrast between the raw silk used here and that which serves for making the same kind of goods in Europe, is very striking. What our manufacturers would regard as "poor silk," worth perhaps one dollar per pound less than the best, would be accounted very fair silk for delivery to the European weaver. The reason on the part of our manufacturer for choosing the best raw material, at a necessarily higher price, may be very easily stated; his experience has taught him that the best is cheapest. All the processes from first to last by which an inferior article can be made to appear equal to that of a higher grade, are costly in labor.

In any case there are about a dozen distinct processes which raw silk must undergo to prepare it for the loom. We will name these in their order :

<i>For Organzine.</i>	<i>For Tram.</i>	<i>For both Organzine and Tram.</i>
Assorting.	Assorting.	
Winding.	Winding.	
Cleaning.	Cleaning.	
Spinning.	Doubling.	
Doubling.	Spinning.	
Twisting.	Dramming	
Dramming.	.....	
.....	.....	Dyeing.
Winding.	Winding.	
Cleaning.	Cleaning.	
Doubling.	Doubling.	
Warping.	Quilling.	
Picking.	.....	
.....	.....	Weaving.

In each of these processes except dyeing, imperfections in the thread cause loss of time and material. Suppose, for instance, that the raw silk, as imported, is uneven. That is to say, the continuous thread which is

to be wound upon a spool, is found to be of irregular thickness as it unwinds from the reel. Such a thread is stronger in some parts and weaker in others. What happens? Probably the thread breaks in the first winding from the reel. The winding machinery stops automatically, and perhaps a portion of the thread which is weaker than the rest has to be pulled off and thrown aside as waste silk. Then a knot must be tied, and the winding goes on again. But if the raw silk is very irregular in thickness, a similar accident can happen in any of the subsequent processes; a loom may have to be suddenly stopped; it is always the same story—breakage, stoppage, waste of time (labor) and of material. The loss of time, when machinery, running at high speed, has to be stopped, becomes a serious matter, from the mere fact that there is no production during the stoppage. "It costs," said a manufacturer, "fully five times as much to tie a knot in this country as in France."

To eliminate, so far as is possible, defects of this class, silk is subjected to a series of sortings between the steps of its progress from the cocoon to the loom. The importance of the correct sorting of raw silk is so great that a considerable portion of the recent improvement in our manufactured goods is traceable to the fact of our receiving from Asia at the present time stock that is more carefully assorted in respect to sizes. In former times there would be found all sorts of sizes in a package of raw silk, and almost the only distinction set forth between the parcels was, that one was for "tram" and the other for "organzine." (The warp threads are organzine; the woof or "filling" is tram.) At the present day it is recognized by raw silk producers that if the material is not properly assorted, it is not fit for the American market. Our manufacturers also take more pains than formerly, to make their own sorting of the raw material fairly accurate, previous to the first winding. Moreover, at a later stage, but before they are dyed, the threads are weighed with exactness by a mechanical process called "dramming," and sorted again. The precise weight which a piece of goods will have when it is woven, is calculated and known beforehand. By means of such care, the manufacture is conducted with greater economy; the consumer reaps the benefit in goods that are better because more uniform, and at the same time cheaper.

One of the preparatory processes that precede weaving, has been mentioned as "picking." This consists of spreading out every thread of the



warp separately, examining it with the utmost minuteness, and removing all knots, slugs and irregularities. A large number of slowly moving threads are spread out like a huge fan, while keen eyes are bent upon them, and nimble fingers seize and extract the imperfections. The contrast between higher and lower grades of silk becomes very apparent when the threads are thus spread out. In the very best silk, scarcely anything like lumps on the thread will be visible to an untrained eye ; in inferior silk, such defects are numerous and of comparatively large size. In Europe, where weaving is mostly done by hand, picking is part of the business of the weaver ; he stops his loom at any moment to remove a knot or slug from the thread as it is woven. He is expected to turn out goods free from defects of this character. The system here is entirely different, and it is necessary to have all the threads of warp and woof as perfect as possible, so that there shall be no stoppage in the operation of the power-loom.



## V.

*Black Dress Goods.*

NLY three years ago, one of our oldest manufacturers made the following statement in the course of a conversation: "I scarcely hope to live to see plain black dress silks made in this country. There is no prospect of it at present. A great improvement in our manufacture, would first be required, and I do not think it is possible with our comparatively high-priced labor."

The earlier successes that paved the way to the present manufacture of these fabrics, were won—with some exceptions—in producing goods of lighter hue and varied texture. It seems at first sight a paradox that plain black dress silks should be harder to make than the most elaborately figured goods. The reason is, chiefly, that the plain fabrics show every defect; and trifling variations in the mere thickness of a thread, which would be quite imperceptible in goods that are overlaid with ornament, become strikingly apparent in an article of uniform surface. To secure a perfect equality in the threads, every one of them must undergo minute supervision; and this cannot be effected by machinery alone, it requires skilled labor—the most costly thing in America.

A reduction in the cost of raw silk might be expected to lower the prices of imported goods, and thus make a competition with them more difficult than before. But in fact the reduced cost of raw material has enabled our manufacturers to make experiments that formerly were too expensive to be tried on a large scale. Their success with a great variety of new goods had already given them means and confidence for fresh ventures. They had learned the conditions under which to use the power-loom to the utmost advantage, and the machinery as well as the processes had been greatly improved. One of the most curious and important results attained by the practical experiments of manufacture, is that because of the high price of labor here, it is most profitable to use

the best of raw material ; and hence a reduction in the cost of that material proves a more important factor in the total cost of the goods, than would be the case if inferior stock were employed.

Our factories have gradually become better equipped and better organized : while at the same time their owners have learned new art. But this is by no means all. The operatives themselves have been learning, and have become—unquestionably—far more skillful. They waste less. We are assured that each loom now turns out one-third more of finished goods than it did a few years ago. The saving is effected in two directions ; less time is consumed and less silk is wasted. This is probably the chief cause why some of our mills are now making fine dress silks at a profit.

There have been, however, very marked improvements in the machinery used in silk manufacture. Concerning these, we need not enter into technical detail. Most of them consist more in developing the capacity of machinery for various kinds of work, than in inventions wholly new. More important than all else is the substitution of the power-loom for the older method of weaving. The product of the steam-driven machine is, of course, mechanically accurate. When all the work of weaving was done by hand, labor dictated its own price and retarded development in this manufacture. The business of the silk mill was then, to a certain extent, at the mercy of its operatives. Now, the employer finds himself at liberty to make goods to suit his customers, and as he can calculate the cost with greater certainty, he is encouraged to attempt improvements in his fabrics.

The system of manufacture in Europe is entirely different from that which has grown up in this country. Judged from our point of view the European manufacturer seems rather to be a mere contractor. He buys tram and organzine—*i. e.*, filling and warp—which have been made at a separate factory. He sends this material to another establishment, a dye-house. Finally, he puts it out to weavers who have looms at their own homes. He has no factory and no machinery. Under such circumstances it is not surprising that there is little improvement in machinery and methods, from year to year. Our manufacturers have been obliged, on the contrary, to concentrate the work, so as to keep every portion of it under direct supervision. In several of our larger silk mills all the different processes referred to are conducted beneath a single roof ; so that the raw silk becomes finished goods under the eye of the manufac-



turer. In some instances these mills have within their walls, rooms provided with all tools and machinery for their own repairing and carpentering work ; a few make nearly all their own machines. There is a marked disposition to try improvements in this country, and it is the general experience that the very best machinery, though at first far more costly, is in the end decidedly the cheapest.

The European manufacturer derives certain advantages from his system. A considerable part of his product is made to order, thus relieving him of the risk of originating goods of new design which may or may not find favor in the market. He is not obliged to start with a great outlay for mill and machinery ; this leaves him free to employ his capital in purchasing yarns, and he usually buys and stores in his warehouse enough to supply his weavers during an entire season. It seems evident, however, that the division of the processes between three or four separate establishments, throwsters, dyers, weavers, and, probably, finishers, must imply an added cost in a profit to each. The American system is largely a consequence of substituting machinery for manual labor. The work of the power-loom is definite and positive ; it is not liable to defects such as happen to hand-made goods if the weaver's hand is unsteady in throwing the shuttle, or if he is careless in using the number of picks required by the pattern. Of course such defects can be to a great extent avoided by a very careful inspection of the fabric as it comes from the weaver's hands ; but there is certainly room for the belief of our manufacturers that the power-loom goods are more serviceable to consumers because more uniform and therefore more durable. Many minor improvements in the machinery have also contributed to this result within a very few years.

It is estimated that from a fourth to a third of the plain silks and a much larger proportion of the brocade silks which are consumed in this country, are now made here. As most of our manufacturers did not undertake in earnest the work of making broad silks more than four or five years ago, this may be regarded as fairly rapid progress. The advance in this branch of manufacture within three years is greater than in any other department of our silk industry. The marked feature in the production of these goods has been their comparative freedom from adulteration by heavy weighting in the dyehouse. Several of our mills are winning for their goods an admirable reputation in this particular. The constant effort of European makers has been to meet a falling market with fabrics

that appeared as good as formerly, but could be sold cheaper because really inferior. Here, for the sake of obtaining a foothold in the market, it was necessary to make goods as free from weighting as possible. The adulteration is usually performed in dyeing the yarns, before they are woven, and it is fully within bounds to state that all European broad black silks, with the exception of perhaps a very few of the highest priced, are thus doubled or trebled in weight. When heavily loaded, the fabric gives little satisfaction to the consumer. Sometimes the superfluous dye-stuff shows itself after a few days' wear, in spots and blotches; sometimes the dress begins to look greasy or rusty; before long it frays and breaks in the folds, and then the ruin is complete. It had become a proverb that "buying an imported silk is like purchasing a ticket in a lottery."

A humorous article in the *Hartford Courant*, recently described "The Black Art in France," as follows:

The principal substance used for weighting the silk is iron. It is repeatedly bathed in nitrate of iron until it acquires the desired weight of that metal. Then it gets a blue tint from prussiate of potash, and then several baths of gambier and a treatment with acetate of iron. At this stage the silk is lustreless and dead; but never say dye (enough) is the rule, and so it is made bright and lively by a logwood bath and large quantities of soap are added. Now comes the important question, whether the silk shall be of the soft and satin sort or stiff and rustling. For the former it gets a little oil and soda; for the latter, acid.

And then we have our finished goods consisting, to summarize, of iron, soap, gambier, potash, logwood, oil, soda, etc., etc., with silk. The two cardinal defects in black silk are the "wearing shiny" and the cracking. The former comes from the natural action of the soap and alkali, which together develop a sort of grease under friction; the cracking is simply the inability of the little silk to carry its great load of the other products of industry that are spread upon it. It is asking too much to demand that the few strands shall act as iron mine, soap factory, and chemical laboratory all at once and stand the wear of practical use besides. These are requirements before which the English attempt to make a grocery store out of a shirt pattern is a simple and ordinary matter.

Under the French treatment of silk a "little will go a great way" undoubtedly, for it goes thousands of miles—to the American market; but it is about time the women of the country should know what they are buying when they buy these goods. Those women, who persist in believing they are buying tin when they get sheet iron with an infinitesimal coating of tin over it, and consider themselves cheated when the iron begins to show, may still believe they get silk when they get this mass of black and melancholy dye-stuffs, mourning as it were for a lost silk-worm; but, so long as they do, they are doomed to discover that black silks will not wear well. The iron will prevail.

Most of our manufacturers claim that their broad silks are of the highest standard of purity. They invite a comparison on this point. We quote from the instructions to buyers which accompany some samples:

"Please compare this silk with the best French goods, by raveling out a few of the threads from each. Test their comparative smoothness and strength by passing through and breaking over the fingers. In heavily dyed silk the particles of dye will make the threads feel rough and lumpy to the touch. Then by wetting the lint from each separately, the goods weighted by dye will be readily distinguished by the dye coming out under pressure.

"Another simple but effective test of purity, is to burn a small quantity of the threads. Pure silk will instantly crisp, leaving only a pure charcoal ; heavily dyed silk will smoulder, leaving a yellow, greasy ash."

Perhaps the most convenient way of applying the first of these tests, is to chew the filling thread of the silk to a pulp, and then to squeeze it in a white handkerchief. But though convenient, the method is objectionable as a matter of taste, where weighted goods are thus tried ; though a person in the habit of wiping his pen in his mouth might not find the loaded silk disagreeable.

American dress goods cannot be expected to win full reputation on their merit at first, since they are not made to wear out in one or two seasons. But already they are acquiring a very good name. A few weeks ago a lady was trying to match a very old and very excellent piece of imported black silk, at one of our largest dry goods houses. The salesman, after carefully examining the sample, expressed a doubt about being able to match it. "It is first-rate silk," he said, "and I think it is of American make ; it is better than the imported." One of our more sanguine manufacturers declares his belief that within ten years the dress silks of this country will bear a higher reputation than those made anywhere else in the world.





## VI.

*Various Piece-Goods.*

MUCH of what has been said of the improvement in plain black dress goods applies also to a great variety of more ornate and varied fabrics. The production of figured dress silks has attained large development within a very few years. In these articles, raw material usually bears a greater proportion to labor than in thinner fabrics. Hence in the history of improved manufacture, these goods began to be extensively made here before the plainer ones were so generally attempted by our weavers. The designs are mostly original, and rarely take anything more than a mere suggestion from abroad; they change with every season's fashion, both as to color and pattern. Most of the alterations in design involve a considerable expense in adjusting Jacquard machinery; they are made almost without exception on power-looms. No mere description can do justice to the beauty and variety of these fabrics. Owing to improvements in manufacture and the excellence of the raw material, they are firm and serviceable, and at the same time marvellously cheap. They are adapted to a taste which eschews everything gaudy and extreme, while delighting in delicacy of design and purity of color. The earlier Jacquard machines used by our manufacturers in producing these goods, were imported from England or France; the mechanism now in use is wholly made here, and is especially adapted to our requirements. The Jacquard machines remain the same in principle, but we are now able to run them more smoothly, to apply them to more intricate patterns, and to obtain from them a higher speed.

In producing grenadines and satins, the improvements have been equally striking. Goods are made which combine features that were once entirely distinct. Thus, for instance, at first sight it would seem that nothing could be more widely separate in manufacture than the open web of grenadine—a fabric which might be likened to lace—and satin, whose smooth, impervious surface might class it with close-woven cloth. But

the ingenuity of the weaver has long since bridged the gulf between these fabrics, and produced grenadine with satin stripes. Then came a further combination, adding a brocaded pattern which permeates both the network of the grenadine and the sheeny surface of the satin. The effect of these and other combinations is in general to give "richness" to the fabric, and perhaps to justify a remark which foreigners have made as a criticism—that "Americans don't seem to be afraid of their silk." Neither the operatives nor the machinery of former years could have produced the finer grades of damassé dress goods, and the combinations of gros-grain, satin, brocade and grenadine which may now be required by fashion. To classify these various combinations and describe the different results separately, is, if not outside of the scope of the present work, at all events beyond the ability of its writer.

In some of the older families of this country there are preserved a few specimens of early attempts at making satin goods from home-raised silk. A comparison of those relics with the products of the present day brings the improvement into clearer light. The thread which makes the surface of satin or brocade, is now more thoroughly tied down than formerly; in the best goods it no longer "floats" when the fingers are drawn across it. A solidity and evenness has been conferred on the fabric, which renders it at once more compact and more durable. While they were in fashion, some excellent upholstery satins were made here and found ready sale. They attracted attention from foreign visitors—experts—at the Centennial Exhibition, and were highly commended in respect to color and finish. These were decidedly "broad goods," being fully sixty-four inches in width.

We should like at this point to say something about velvets made in this country; but at present it would have to be as brief an account as the famous chapter on the "Snakes of Ireland: There are none." A few velvets have been made here at intervals, and in different localities. Good judges have spoken well of these specimens, but the manufacture has not yet been found profitable. There seems to be an opportunity not yet seized, for the invention of labor-saving machinery in the production of silk velvets, since the old methods of making them are slow and very cumbersome.

The process which is called "finishing" or "re-finishing" is of great importance in preparing piece-goods, and is, as its name implies, the final

operation. It is itself a distinct branch of business, and requires special machinery as well as knowledge and experience. The "re-finisher" has succeeded in demonstrating to most of our smaller weaving concerns, and also to some of the largest, that this work can be better done in an establishment devoted to the purpose, than in the regular silk mill.

Heavy calendering machines and hydraulic presses of 300 tons' power are used in re-finishing silk fabrics. The pressure has to be variously applied, according to the effect required, and the calender rolls can be graduated from a squeeze of five pounds to one of 60,000. There are some goods that have to go through hot rolls and some through cold; and differences in the surfaces of the rolls may convert plain silks into striped ones, or change them to *moire antique*. Brocades, fancy silks and satins must undergo the re-finishing process, as well as gros-grain. Indeed, the effect is more striking with figured than with plain goods. A brocade flower, for instance, in passing through the proper amount of pressure, gains a definiteness of outline and a pictorial character that were previously wanting. Satin requires the highest pressure to bring out its full lustre, and though the most difficult of fabrics to manage in finishing, it best repays the labor. With many fabrics, a liquid dressing has to be applied to the surface, and in some instances a fire-box must follow the dressing in order to dry the liquid so quickly that it will not strike through to the other side.

The re-finishing business began with imported goods. These are sometimes damaged on their voyage, and require to have their freshness renewed. A more frequent occurrence is that the fabrics need to be modified so as to meet a change of fashion. In some seasons ladies have wanted their dresses to have a certain crispness, and then they required "hard silk;" at other times only the silks which feel softest in handling, could be sold. Either of these results can be reached in the finishing processes, which have immensely improved within a very few years. American silks are found to need a treatment different from that which is suitable for imported goods, and the best method could only be ascertained by new experiment. The results now will bear comparison with foreign work, and a business has been created which will, if it continues, justify its experiments and outlay.

No difficulty is found in producing in this country excellent marcelines, florentines, serges, satin de chine, and the various fabrics used for linings.



Only a small portion of the thread is floated in serges, but it adds to the variety in their colors and patterns. Promptness in adopting any new ideas as to the style of these goods has given our manufacturers some advantages over their foreign rivals, but the chief point made is, that the American linings wear longer, because they are of purer silk. This is another instance where excessive loading with dye-stuffs and the use of inferior raw silk, on the part of European manufacturers, have so hurt a trade as actually to reduce the consumption. There is now, however, a marked revival of confidence in respect to such fabrics made here ; and as to those which are imported, European dyers have offered to stipulate for goods to be guaranteed as of equal purity with the American.

One of the evidences of deterioration in foreign silks which is most generally recognized by the public, is the difficulty of obtaining a silk umbrella that has lasting qualities. The rapidity with which these articles split in the fold and resolve themselves into sticks and rags, has been of late years quite abnormal. But there is reason now to hope for better things. At least two of our manufacturers have successfully undertaken to solve the problem of making umbrella silk that will last two years or more—instead of as many months—with ordinary usage. The fabric which seems best adapted for this purpose is known to the trade as “levantine,” and is specifically different from taffetas and serges ; from the latter it may be distinguished by the absence of stripes in the warp. American weather is rather hard on umbrellas, but some of them, made here from ferule to handle, have survived the equinoctial storms of successive years, and are still fit for service.



## VII.

*Spun Silk.*

HERE are two distinct methods of treating the product of the silkworm. If the filament of the cocoon can be unwound from it as a continuous fibre, it is reeled, and is known in commerce as "raw silk." If for any reason the filament of the cocoon cannot be reeled, it must be spun. The raw material which is to be manufactured into spun silk, bears the general name of "waste silk."

Some popular misapprehension has arisen from the use of the term "waste," as applied to this raw material. It suggests the erroneous notion that the foundation of spun silk goods is a kind of shoddy. Nothing could be farther from the fact. Shoddy is a material obtained by tearing into fibres, goods previously manufactured. That process is not applicable to silk goods, and no shoddy is made from them. After raw silk has once been twisted into a thread, it cannot be torn asunder and produce anything of value.

Actual fibre is required for spun silk, though not of such length and continuity as that which can be reeled. Even if the manufacturer of spun silk makes use of a low grade of "waste," he is not able to spin from it anything but the fibre, and the simple result when he uses inferior stock, is that he must take a much larger quantity of it to provide a given amount of useful silk. The residue, which has no fibre, is of no service in manufacture, and is all loss.

There are several sources of so-called "waste" silk. Perforated cocoons furnish the chief supply. These have been pierced by the moth, which exudes a fluid that softens the thread at one end of the cocoon so that there the insect can push its way out. There are also cocoons of irregular formation, from which the silk cannot be wound. Another large source of supply is known as "filature waste" or "frisons." This consists chiefly of the tangled thread or floss on the outside of the cocoons, and the waste made in winding from them. Lastly, there is "mill waste," which is raw silk more or less broken or tangled in the earlier operations of the silk mill. The only essential feature which distinguishes waste silk from other raw silk is its want of continuity of fibre,

which prevents its being reeled. It has to be straightened and ungummed, and then is carded and spun by methods similar to those employed with flax and cotton. When this is done, the spun silk is of about the same value as reeled silk in the gum. Waste silk, indeed, kept its price during the whole of the past year, during a period in which reeled silk fell in value at least 25 per cent.

The processes of manufacture in spun silk are just as delicate and trustworthy as those of cotton spinning. The material passes through a series of different machines, some of them marvels of ingenuity ; and when ready for spinning, looks like the whitest of combed fleeces, except that it has a brilliant lustre, similar to that of spun glass. It is then of such perfect uniformity that the thread to be made from it can be produced with absolute mathematical accuracy, of any required size. This uniformity, which can always be depended upon, gives more durability to a fabric than if it were wholly made of reeled silk.

Great improvements have been made in the manufacture of spun silk, so that the goods are better than formerly, in every respect. The best effects are obtained by using the lustrous reeled silk to give the surface of the fabric, and the spun silk to give the body. In some European goods that have recently come to this market, the arrangement is reversed ; they have a spun warp and reeled filling. The object in these cases is to secure a dead surface with a lustrous figure ; and a stiffness of fabric is also attained, which is supposed by purchasers to be an evidence of good silk. These fabrics supply a fresh indication that spun and reeled silk are more and more becoming interchangeable factors in the manufacture ; a condition to which their near approach in values contributes.

Since almost every variety of fabric that is made with reeled silk has its counterpart in articles more or less composed of spun silk, it follows that the direction which fashion gives, controls both equally. The novelties called forth by a season's transient demand must be produced in time for that occasion, by the spun silk manufacturer. For this purpose, however, he does not copy foreign designs ; at most those can only offer to him general suggestions. It has been found, in fact, that copying is rarely profitable ; the most marked success has frequently attended the production of purely original designs. The risk of such novelties falls wholly upon the manufacturer ; he can only rely on his own judgment and his general knowledge of the tendency of the prevailing fashion.



It is claimed for fabrics partly or wholly made of spun silk, that they fill a place of their own in the market. They supply a cheap and at the same time a serviceable material. The purchaser gets silk that is pure—not loaded with dye-stuff. There are only two methods of making very cheap silk fabrics ; one is to weight the material with chemicals that will give it weight and showiness in general, hiding its want of actual silk. Such goods give little satisfaction to the wearer. Their defects soon become apparent ; “there is no wear in them.” The other method of making cheap silks is to substitute spun for reeled silk. By such means goods can be made that are fairly within the reach of slender purses, and will do good service to the wearer ; goods that can be sold as cheaply as are the weighted fabrics. Spun silk *can* be adulterated with heavy dyes quite as easily as reeled silk ; suffice it that such is not the practice here. All the spun silk fabrics made in this country are what are classed as “pure dye ;” the pound of raw material coming from the dyer’s hands with no additional weight except what is requisite to give a good color and body to the fabric.

The improvements that have been made in the management of spun silk in manufacture are such that its comparative want of lustre is far less apparent than was the case a few years ago. Especially is this true of the products of the Jacquard looms, the brocades and damassé silks in general. White and very light brocades, such as are suitable for ball and wedding dresses, are among the most recent and ambitious efforts of this manufacture. They are of absolutely pure silk, and are so lustrous that even an expert would not be able to distinguish them from reeled silk fabrics, except by a critical examination. The advantage to the purchaser of such goods may be briefly stated : in appearance and actual worth for wear, they are equal to brocades that are selling at \$3 to \$4 per yard ; they are sold at half those prices. Fashion seems now tending toward heavily flowered brocaded silk, such as used to adorn our grandmothers.

A feature of this branch of business is the production of printed goods. In this the improvement of recent years is very striking ; satins, for instance, printed in colors, have to the eye the same richness of effect as if they were made by the more costly process of the Jacquard looms. In Europe, printing is done with little blocks, a few inches square, which are slowly and more or less imperfectly used in hand-work. Here, ingenious machinery is employed, printing many colors at once. A

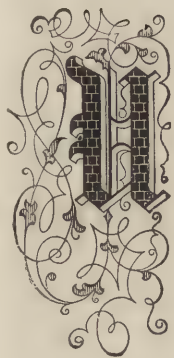
machine for this purpose requires a special steam-engine to drive it, in order to have it under absolutely accurate control as to speed, pressure and registry. Patterns that cannot be perfectly matched by hand, may be turned out faultlessly by such machinery.

Ribbons known to the trade as "schappe," which are wholly of spun silk, were first made in this country. Now, they are largely produced abroad, the Swiss giving us the compliment of imitating our designs and labels. The foreign ribbons make a good appearance, but their stock is inferior and they do not wear well. If made abroad of equally good quality, ribbons of this class could not be sold here at a profit.

The raw material that enters into silk fabrics in this country would be considered extravagant in European manufacture. It is an unquestionable fact that there is more silk for the same money in American goods than in those which are imported. We compete to more advantage in the heavier fabrics than in the lighter ones, because in the latter the labor is the chief item of cost. But we are also the gainers in competition for trade in heavy goods, because of a deservedly better reputation. The popularity of silk goods had been seriously endangered by the practice of weighting, and dress silk in Europe no longer holds the place that it did as an elegant and permanent fabric. So far as American buyers have been dependent upon imported silks, the same distrust has extended here. It remains for our manufacturers to overcome that distrust by continuing to supply goods of standard purity. We now surpass European makers in the durability of our silk goods. A permanent command of our own market is to be attained chiefly by the good reputation of our fabrics, and by keeping them up to the standard. But not for a moment can the manufacturer safely rest on his laurels; he must ever design novelties, adopt or invent improvements, and anticipate the constant changes of fickle fashion.

Spun silk no longer hides itself behind other goods. It claims equality, on the ground that durability and uniformity make up for whatever may be wanting in lustre and beauty. The deficiency in these latter features is now very slight; in some classes of goods it is scarcely discernible. Spun silk fabrics are not made or sold as cheap imitations of reeled silk; they stand on their own merits, and are just what they profess to be; a durable and low-priced, not a poor or adulterated article.

## VIII.

*Handkerchiefs, &c.*

UNTIL comparatively recent years the use of silk pocket-handkerchiefs was regarded by most people in this country as extravagant luxury. The possessor of such an article was seldom willing to admit that he had purchased it ; it had been presented as a Christmas gift or a token of affection. It was only brought out on grand occasions, and when somewhat wornout was carefully treasured for use in giving the finishing touch when brushing a silk hat, or for a yet more important service in case its owner should happen to contract a severe influenza, and find his nostrils more than usually tender.

The more general use of silk handkerchiefs in the United States began about eight years ago, and was largely accelerated by the Centennial Exhibition. These goods were entire novelties to thousands of visitors from all parts of the country. One manufacturer is said to have sold, at that Exhibition, not less than 25,000 handkerchiefs, all of a single class, and generally of two or three colors. Some of the visitors from far distant States were rough-looking customers. The father of a family, for instance, was going about without a coat ; perched on his shoulder was a child, about four years old ; two daughters accompanied him, just ripening into maidenhood, and so bashful that they scarcely dared to touch the goods offered for their selection. "I've come 1,500 miles to see this show," said the father, as he laid down a \$50 bill, preparatory to purchase. Each member of the family chose handkerchiefs of a different pattern, and as if laying in a stock to last some years. When those people went home and showed the goods to their neighbors, they created a demand for silk handkerchiefs in that distant locality. This instance of the creation of business by the Exhibition, is only one of thousands that were not so circumstantially noted. It is calculated that the whole trade in silk handkerchiefs was advanced at least two years, by the Philadelphia display ; the total increase of sales since 1873-4 being now nearly five-fold.

At the present time the handkerchief—whether for women or for men



—most frequently starts in its career of usefulness as a dress ornament, a scarf, a neckerchief. When partly soiled, or after its first washing, it usually descends to the pocket; though some of the inferior grades are apt to serve as a mere necktie, and even as a substitute (at the West and South) for the collar, being cooler, cheaper and more convenient. Its various uses and its low price have doubtless given the silk handkerchief its popularity, and the consumption of these goods was not diminished during the hard times from which the country is now emerging.

These articles, made in this country, have only recently acquired their good reputation. Not much more than five years ago a leading buyer of silk handkerchiefs declared in so many words, "I don't want any American goods;" and at that time a retailer could scarcely be induced to put them on his counter. Now, it is not unusual for a purchaser to ask for American-made handkerchiefs, and the prejudice against them has wholly disappeared. The complaint most frequently urged against the foreign goods was that they were too flimsy. The handkerchiefs which best meet the demand here have been more substantial and solid. Brocade handkerchiefs are often made with four or five different colors; the patterns change rapidly with fashion, though one of them had a run of two years. The figures of these goods have a notable hardness to the touch, being well bound down in the process of weaving—a result of improvement in machinery and in the arrangement of the harness of the loom. Printed handkerchiefs have also been greatly improved and share the general favor.

It is not a long step from handkerchiefs to scarfs and neckties, and millinery goods in general. The variety of texture in these fabrics is to a novice almost appalling. The foundation may be as open as grenadine, or of the closest weaving; and the combinations with satin and brocade figures are endless. Most of this branch of industry has come into existence here within a very few years. One manufacturer describes its growth as starting, in his experience, with making stuff for men's neckties like the Crefeld goods, of silk warp and cotton filling, about the years 1869-70. Many hardships were encountered in creating the business. The first lots when sent out to the trade, to be cut up into ties, were returned to the maker as wholly unsatisfactory. After various trials, he resolved to cut up the goods in his own factory, and he afterwards gradually established a trade in the completed neckties.

The fashions change so rapidly in millinery goods that it is only in rare instances that an article has a long run. The looms must at frequent intervals be overhauled and harnesses be changed to produce novelties. These rapid changes scarcely give opportunity for perfecting the methods ; better goods of any given kind could doubtless be made with longer practice. The expense of the needed alterations is heavy, and adds to the cost of the fabrics which fashion specially demands. On the other hand, if there seems to be a good prospect for steady sale of a special article, many mills will be set at work upon it, and a sharp competition will reduce the price. Between these rocks the producer of millinery silks must steer or be wrecked. In Europe there are fewer difficulties of this kind to be avoided ; there is far less enterprise in preparing for novelties, and a considerable proportion of the goods is made to order.

Since our manufacturers are willing to make these quick changes to meet fashion, they gain thereby an advantage over foreign rivals. A purchaser who buys his millinery silks abroad for this market must expect to get many patterns and shades that will be comparatively unsalable, along with those which hit the fashion. Mere consignments from abroad, not selected by American buyers, are largely of styles that are no longer in request. In either case the importer expects to close the season with auction sales and sacrifices. Meanwhile the American manufacturer can stop his production of any given article as soon as there are symptoms of its becoming unfashionable. It is not easy to estimate whether the importer or the home manufacturer has to take on the whole the greater risk. It will be seen, however, that the stock of American goods is more likely to be in the fashion than those which come from abroad.

The standard of taste gradually becomes higher and more exacting in this country, and the changes we have referred to call for constant improvements in the arts of manufacture. The fabrics of three years ago appear to-day so inferior that we wonder how they could have found sale. But though the goods have improved so greatly, their prices are lower, and in this branch of the trade as in others, wherever the home manufacturer has somewhat supplanted importation, a home competition has kept down the cost to consumers.

## IX.

*Ribbons.*

THE manufacture of silk ribbons in this country was of lowly origin. About the year 1861 it began with taffeta ribbons, plain, and of the broader widths. It was undertaken not as a regular manufacture with a view to direct profit, but merely as a matter of convenience to fill deficiencies in importation. When, for instance, there was a lack of taffeta ribbons of a blue shade, that color happening to have been more in demand than usual, the importer thought it possible that the needed supply might be secured more quickly here than it could be ordered and obtained from abroad. So the early manufacture was a mere experiment, with the hope that it would make the imported stock of ribbons more desirable by filling the gaps. There was no idea of competition with goods made in Europe. Of course, it always happened that whatever was most fashionable, and hence most desirable, was the first to become scarce. Two or three months would be required to fill a given line of goods by importation; two or three weeks might be time enough to make them here.

So, the experiment being tried and often repeated with success, a regular manufacture was at length organized. But for a long while only the broader ribbons were made, because the narrow goods require the most labor in proportion to the amount of silk. Stated in round numbers, the broad ribbons first made were at least 40 lines in width. Only within three or four years have the narrower ribbons been attempted; now, seven lines in width is not unusually narrow for manufacture here. A line is the twelfth of an inch.

The high price of gold during the war-period operated almost as a prohibitory tariff, and checked the importation of foreign ribbons. This gave an opportunity to our manufacturers to organize their work, and stimulated them to found mills and buy machinery. Different



classes of work were successively undertaken. The order of development of the industry has been somewhat as follows :

Plain ribbons, taffeta.

Plain ribbons, gros grain.

Satin ribbons, single-faced, plain.

Satin and gros grain ribbons, double-faced.

Two-toned satin ribbons—*i. e.*, satin with two colors, one on each side.

Fancy ribbons, Jacquard work.

Some of the relations of these different articles to each other may be mentioned as showing the line of development. The gros-grain ribbons were an outgrowth from taffeta, by making the filling more heavy. The two-toned satin touched the highest point in harness-work (*armure*). The demand for ribbons of such a high order indicated that the more elaborate productions of the Jacquard loom would find favor. Harness-work is by its nature limited to patterns that are more or less right-angled in their details ; Jacquard work can follow any curve of outline, and has been employed for all sorts of pictorial reproductions, such as leaves, flowers, birds, landscapes, portraits, &c. Pictures in silk, produced by machinery of this sort before the eyes of the visitors, were among the most attractive things of the Centennial Exhibition. Fashion has required, within a year or two, a variety and richness in patterns, unknown before ; and the weaving of Jacquard ribbons has thus been fully developed here.

All the ribbons now made in this country are the product of power-looms. This is not true of European manufacture. We began, however, by buying English power-looms : these were rapidly improved upon, so that the good points of French, Swiss, and German methods of weaving were reproduced in our more rapid machinery. Such quick adoption of any improvement, no matter where originating, is characteristic of this country ; it is rare in Europe, because there the people of each nation have a prejudice against methods that to them are foreign. Having now the best power-looms in the world, our mills turn out ribbons that are of a perfect uniformity, the same in one part as in another ; a result that could never have been attained by the most careful hand-work.

The market for our ribbons was not obtained without difficulty. They were at first derided as "domestic trash." The entering wedge was

found in supplying special colors. The tables are so perfectly turned now, that it is only inferior ribbons—principally schappe and taffeta—that are imported in any considerable quantity. The foreign manufacturers compliment us by imitating American tickets, trademarks, and designs. “Have you anything new in broché ribbons!” asked one of our countrymen of a Lyons manufacturer. “Alas!” was the reply, “You can make in America anything that we can.” As fashions generally originate in Europe, it might be supposed that foreign designs would be followed in this country. Such, however, is not the fact. The styles that originate abroad are made up usually, to suit several different markets; they are rarely intended for America alone. Our goods on the contrary are made exclusively for the home market; the ribbons must suit the taste of American ladies. The guidance of foreign fashion can only be followed in a general way, and not often in its great extremes of pattern or color. Nearly all the designs for American ribbons originate in our factories, frequently months in advance of the introduction of the goods into the market. These designs have excited admiration abroad as well as at home; they are works of the artist rather than of the mere artisan. The novelties of pattern and design compel changes and improvements in machinery; and better goods result.

The statements which have been made elsewhere in this volume, of the comparative purity of American silk goods in respect to freedom from heavy dye, and as to superiority of the raw silk used, are applicable with special force to the ribbon manufacture. The loss of trade in foreign ribbons must be in large measure attributed to their being overweighted, and of inferior silk. This is, of course, most noticeable in black ribbons, and our manufacturers have taken the opposite course with great success, their gros grains being remarkable for purity of dye and strength of stock.





## X.

*Trimmings and Passementerie.*

HERE are several minor divisions of the trade in fringes, trimmings and passementerie. Of these the most prominent are—

- Ladies' dress and cloak trimmings,
- Millinery trimmings,
- Hatters' and furriers' trimmings,
- Upholstery and military passementerie,
- Coach trimmings.

We shall not, however, adhere very closely to these distinctions. In regard to the most important class of fringes, it should be mentioned that their manufacture begins in the mills where sewing-silk and machine-twist are made. What is called "two-thread fringe silk," is sewing-silk, and "three-thread fringe silk" is machine-twist. The "fringe silk" is put up in large skeins and sold to the makers of fringes, who are classed as manufacturers of trimmings. The marked success that has been attained in this country in making sewings and twist, applies also to fringes, and for the same reasons. The raw material is much better than that used for such purposes in Europe, and there is far less adulteration practised here in dyeing. Our manufacturers can in this branch of trade, as in others, afford to use good stock, because it gives less waste, can be worked more quickly, and altogether requires less labor, than inferior material. The improvements of machinery have also helped in making better fringe silk.

In this instance, our goods have, to a great extent, obtained the reputation that is their due. The retailer has learned to say to his customers, "If you want the best, you must buy American fringes." The chief defect in imported fringe is its want of durability, due to overloading with dye, or soap and other substances used to give an appearance of solidity. Fringes made of French cordonnet or schappe silk are especially liable to such adulteration. When worn, they become rotten by exposure,



and soon drop off the garment to which they are attached. European fringes are usually made of cordonnet, and very rarely of good sewing-silk ; the reverse is generally true of the American goods. Ladies have learned, in purchasing, to test the strength of fringe by pulling out a thread and breaking it. The simple methods of testing whether the silk is overloaded with dye-stuff, which are described in the chapter on dress goods, will also serve to detect adulteration in fringes, some of which (imported) have been found to weigh eighty ounces to the pound of actual silk !

It used to be considered necessary where great elegance in dress was required, to have this class of trimmings selected in Paris. Now, however, it has ceased to be true that "They do such things better in France." The fringe may be required to match a given dress, which itself is a novelty in color and structure ; in general the changes of style have continually called for more elaborate and difficult work, and our manufacturers have responded to the demand by successive improvements. There are still a few of the more elaborate fringes, made by old, laborious methods in Europe, which have not been reproduced by our quicker machinery ; but they can be made here whenever they are called for sufficiently to warrant the outlay. It is calculated that a sixth of all the raw silk imported into this country is absorbed in making fringes and passementerie.

Furriers as well as modistes require for their productions silk trimmings of various kinds, including fringes, tassels and cords. The tassels made for ladies' garments are wholly of silk ; those meant for other purposes frequently have a core of cotton. Of cords there is a great variety, for many different purposes ; a hatter, for instance, requiring cord of a style wholly unlike that which would be needed for trimming a dressing-gown ; there are now made double-faced cords, braided cord, and tubular braid, which would have been beyond the capacity of our factories only a few years ago. Many varieties of braid are used for the purpose of ornamenting fringes. Crochet and other passementerie buttons are made in this country to a limited extent, but the business is not profitable except where specialties are demanded, because the duty on imported button-cloth is exceedingly low.

It may be stated in a general way that comparatively few goods of the foregoing classes are now imported, except what are called "ladies'

passementerie," which may be described as a sort of gimp or garniture made of cord and frequently ornamented with beads.

A sermon might be preached concerning the black braid that is more or less used to trim the edges of men's cloth coats. Several years ago, such trimming was very fashionable. The makers of the braid—in Europe—saw fit to adulterate it largely, and succeeded in getting into it more dye-stuff than silk. The public gradually made the discovery that silk braid did not wear well, soon becoming brown, frayed, and generally shabby. Men began to insist that there should be no braid upon their coats. The result was, as expressively stated by a dealer, that "the trade in black braids was as dead as Julius Cæsar." At this point one of our manufacturers undertook to make a pure braid out of good sewing-silk. The new article had to encounter all the prejudice which the old stuff had created. There was imported braid that could be sold for one-sixth of the price of the American goods; yet the latter slowly won their way in the market, and have secured a demand which is at present steadily increasing.

The manufacture of upholstery, military, church and coach trimmings, including specialties for benevolent and secret societies, has for many years had a firm footing in this country. There is an almost endless variety of such goods; among them are braids, cords, bindings, tassels and passementerie beyond all enumeration. There was a time when all articles of this kind came from England; but that period has almost faded out of recollection. They are made here because ingenious machines have been contrived that largely dispense with hand-labor. The action of some of these machines seems almost life-like; fingers of steel spring out and catch the moving strands, and turn, twist and combine them in the most marvellous way. In one great factory where most of this work is carried on, there is a complete machine shop, where the mechanism that performs these marvels is constructed, and a measure of secrecy concerning it is thus attained. A "cord-walk" is there, of dimensions comparable with the old-fashioned rope-walks, where a large order for a new style of cord can be executed in two hours. As to the variety of designs required in the business, a single example will suffice; the record of manufacture includes a thousand different patterns of coach laces.

Among small wares, the article called "knitting-silk" may be included, though it is made by the sewings and twist manufacturers. It provides an

excellent pastime for ladies, enabling them to knit silken hose, mitts, &c., in otherwise idle moments. To what extent knitting-silk will take the place of the proverbial "green lion on a red ground" in Berlin wool, it is of course impossible to say; at present the new diversion is growing in favor rapidly. The material is soft and fine, somewhat like embroidery silk, and slightly twisted. It is wound on spools, but so amply that they look more like balls. A box of these contains a large variety of colors and delicate shades. This silk is to be knitted with the ordinary knitting needles, and many Boston ladies have become very expert in the performance. As the labor of knitting is not to be accounted, it will be easily seen that a neat article for a present can thus be made at small expense to the giver; about two ounces of silk, costing perhaps \$1.50 to \$2.00, serving for a pair of stockings that could not be purchased ready-made at less than \$5 to \$8. We foresee a time when a favorite clergyman will be provided by his flock with stockings as well as slippers.





## XI.

*Silk Laces.*

THE manufacture of silk lace is so recent in this country that its whole history nearly falls within the ten-year period which we have arbitrarily taken for review. The business has, however, in a single instance expanded sufficiently to give employment to some hundreds of working-people. Their labor is light so far as muscular effort is concerned, but requires dexterity, good eyes, and assiduous care. A large amount of damage may be effected in a few seconds by carelessness or incompetency.

The raw silk used in making lace must be of the most uniform character, and hence a preference is given to that which has passed muster in the conditioning houses of Europe. According to the kind of lace to be made, the thread has to be of a definite thickness, which ranges for different laces from "singles" or merely doubled cocoon-threads, up to substantial silk yarns. The raw silk is converted into "singles," yarns, &c., in this country, at mills that make a business of "throwing" silk, but not at the lace factory.

In other fabrics, holes are a defect; in laces the holes are the chief element of beauty. In plain laces and nets the outline of the holes or spaces determines the class of the goods; and regularity in the form of these apertures is the first thing that strikes the eye. The figures of the more elaborate laces may be said to be formed by the process of filling some of these holes according to a pattern. To these general statements there are certain exceptions. A few laces have meshes so small that the fabric appears continuous, like woven goods. On the other hand, some laces (as, for instance, guipure) are made up entirely of figures united by ligaments; and have no web or "foundation" in spaces which the figures do not fill.

Lace-making machines are large, costly, and intricate. No attempt will be made here to describe them, except to state that they differ essentially from a weaving loom in the fact that they have no shuttle trav-

elling lengthwise. That flying instrument is replaced by an extraordinary number of little disks, which move a few inches to and from a spectator standing in front of the loom, that is to say, their motion is at right angles to that of an ordinary shuttle. The thread carried by each disk, passes first to one side and then to the other of each warp thread and thus forms a sort of knot at each intersection. The process is more nearly similar to knitting or crochet-work, than to weaving. In proof of this similarity it may be noted that nubia shawls of worsted are made on the lace-machines, and present every appearance of handiwork with the crochet-needle. The result is that lace goods have an elasticity which cannot be attained in a woven fabric. A piece of silk net, for instance, can easily be pulled to double its natural length, without injury. The traditional lace shawl could be passed through the wedding ring. People with even the largest hands will find lace mitts that stretch so as to cover their utmost needs.

Fashion controls in the style of laces. Ten or twelve years ago a net for the hair was an indispensable appendage of every civilized female in America. When Metz and Paris were besieged, there was a sudden interruption of the chief supply of hair nets to this country, our manufacture of those articles being then quite limited. For a brief period there was a "corner" in hair nets, and the lace machines were kept running night and day. Some years have elapsed since then, during which all the hair nets found their way into ash-barrels. Now the fashion has again changed; the nets are once more in demand, but this time we shall not be dependent upon a foreign supply.

At first nearly all the business of the lace mills here was in open-work goods, of which the filena scarfs are a fair example. As the manufacture improved, the plain lace or net began to bear "spots." To borrow the language of astronomers, the spot-period rose gradually from a minimum to a maximum, beginning with little open rings—*penumbrae*, as it were, which afterwards were bridged across, and at last being completely filled, became true spots, well defined. Then these spots slowly expanded into the characteristic figures of different styles of lace. It will be no news to fair readers, if some of the distinctive features of different laces are here presented, but it may be news that such laces are made in this country, by machinery, and of the finest silk. It certainly was news in a courtroom not long ago. The case on trial related to duties on lace goods,

and specimen laces were presented and examined by experts. Expert No. 1 pronounced a certain sample to be hand-made lace, of European production. Expert No. 2 said that it was the finest of machine lace, and must have been made in Calais, France. Expert No. 3 declared that it was the product of a factory in the United States, and as the proprietor of that factory happened to be in the court-room, he was called up, and testified to having made the goods in question. At present there is no kind of machine lace, of silk, which cannot be made in this country: and the price is lower while the quality is better than the imported article. The competition which our laces have brought to bear against the European fabrics has, however, lowered the prices of the latter, and thus the consumer is effectually benefited. All of the famous laces have thus been imitated. Among them are the elaborate "thread laces," with a groundwork of fine net, and the familiar leaf patterns; each leaf a wonder of transparent, delicate tracery. The purls or little loops which ornament the edges of this lace, and a sort of ripple at certain points which is produced by reversing the motion of a knitting-needle, used to provide infallible tests for distinguishing hand-made from machine work; but now there are no differences of that sort which are discernible. The "purl lace" is, indeed, all serrated with purls. A great deal of clipping has to be done with some of the machine laces, to cut away superfluous threads carried by the machinery from one point to another, across the web. An examination by a magnifying glass of the stumps of these clipped threads might sometimes determine the mode of manufacture, but this test cannot apply to purl lace, as it is not clipped at all, its superfluous threads being drawn. Blonde lace has a well-defined pattern, and a groundwork which is a little coarser than thread lace. Spanish lace is coarser throughout, and more heavily overlaid. The honeycomb spaces of Brussels lace give it a noteworthy regularity of texture. Many laces, such as torchon and Smyrna, are chiefly peculiar in their patterns. Valenciennes differs from all others in having its threads plaited or braided instead of being twisted or knotted; this is most observable in the figured portions, and can best be seen with a magnifying glass. All the guipure laces are of heavy thread and figures; it has been mentioned that they have no groundwork or web; it may be added that they do not undergo any clipping. For a long while laces with deeply scalloped edges have borne sway. We may not be more moral, but we are to be more straight-



laced than our predecessors, since fashion calls for Bretonne lace, to which purls and scollops are unknown. It is in this lace that the most recent improvements have been made by the manufacturer.

By the natural expansion of a successful trade, the sale of our laces is gradually extending outside of the home market, and they have found their way into Canada in the face of a tariff duty, and in competition with British fabrics. There are, however, some features of the home market which must give it greater permanency than an export trade. Many of our lace goods are made in colors, to meet the transient wants of fashion, and the laces have to match the delicate hues of the goods they overlay. For this purpose an exactness in shades is required. The changes of fashion in respect to these shades are sudden, and as difficult to anticipate as the varying tints of an evening sky. The importer of European goods is at a disadvantage compared with our manufacturer in meeting this capricious demand.

Some of us who have a tender love for old china and genuine hand-made lace experience a feeling of subdued anger at the thought that such precious things can be imitated by soulless machinery. This indignation is not reciprocated by the manufacturers of machine-lace. They would gladly see the making of hand-lace more widely introduced and practised in this country. The importance of such an industry may be conceived from the fact that it gives employment to 130,000 women and girls in a single province of France. We suppose that the ladies who are thoroughly conversant with pillows and points in the United States may easily be numbered, and will not reach high in the hundreds; but as an industrial occupation, lace-making is almost unknown among our countrywomen. Whatever may be the improvements in machinery, hand-made lace is sure of maintaining its superior value. If it were more largely made in this country, it would be more largely worn by the wealthier classes, and their imitators would require more of the imitation laces. Such, at least, is the reasoning of a manufacturer of machine-laces, and it furnishes him with a selfish excuse for a liberal view of the subject.

## XII.

*Dyeing.*

VARIETY in colors seems to be more required now than formerly. The range of tints supplied to our grandmothers was comparatively narrow; the dye-stuffs were few, and could only be used to advantage in certain ways. The art of dyeing was traditional, and its recipes were handed down in families. Now, it comes within the domain of science, and its discoveries sooner or later become common property.

In purity, brilliance, delicacy and variety, the colors used to-day far surpass those that suited our ancestors. In permanence, the new hues have not been so satisfactory, but they are improving. "True blue," and "Dyed in the wool," have become proverbial phrases for honor and honesty. There is a chance for a similar sentiment in respect to "Pure black," and "Dyed in the yarn."

Silk goods, foulards excepted, are not dyed in the piece. There is, however, a small amount of re-dyeing done with piece-goods, more especially as to imported articles, arriving in unsalable colors. Few foulards are made here. They are, specifically, goods made of yarns that have not been dyed, usually of reeled silk warp and spun silk filling; they are frequently designated as *écrus* (unbleached): their colors are often applied by stamps, and if by dyeing, it is always done in the piece.

The rapid succession of discoveries in the aniline colors has put aside both the traditions and the secrecy of the dyer's art, while supplying an infinite variety of hues. The improvement in the colors of silk goods by the use of the anilines is one of the great features of progress in recent years, and can scarcely be overestimated. These dyes are now used to produce every tint, shade and color that may be required for silk, except pure black. Upholstery goods are now the only ones in which the new colors are not the invariable rule. It is expected that aniline black will eventually be applied to silk, and from time to time announcements have been made of success in that direction, though as yet it is not achieved in this country.

While there is really no limit to the variety of tints that can be made with the aniline colors, there are, of course, some bounds to the requirements of trade and fashion. The dyer usually prepares for each season an assortment, designated as "new colors," and comprising about 300 different shades. From these the silk manufacturer can often select the tints of which he wishes to have his yarns dyed; but it frequently happens that some intermediate shade is needed, and perhaps as many more "colors" as are at first offered, will be required in the course of a season. A single fabric may be composed of strands of many colors, and the tendency of fashion has latterly been toward such styles. Certain goods—for instance, swivel cloth—may have figures of a color wholly different from the ground. Last Fall there were ribbons in vogue which required the use of five or six shuttles, each carrying a different color; and there is, of course, occasion for similar and even greater variety in the hues of the warp-threads.

Doubtless, the novelties in color that are presented, stimulate taste in that direction. The brilliant series of aniline pinks, scarlets, reds and crimsons that preceded cardinal, helped that color to the favor it has met with so steadily since its introduction. Next to the reds, the blues are most appreciated. Americans have, however, always admired the "red, white and blue," and we may mention, in passing, that the manufacture of silk flags is a considerable branch of industry, which received a great impetus in 1876, and has not since languished. At present the post of honor among fashionable colors is held by "gendarme blue," (which, strictly speaking, is a bluish green) such as appears in the "eye" or ring of a peacock feather. An expert in these matters has estimated that there are at least one hundred definite shades of color in a peacock's tail. After the reds, blues and greens, next in popular favor come the olives, browns, straw-color, and golden yellow. At the Centennial Exhibition a dyer exhibited the solar spectrum in colored silks, with fine effect, using about 100 different shades for the purpose.

The display of American silk goods of all kinds at Philadelphia was in general more brilliant in color than that of corresponding articles from Europe. This fact will appear of some importance, when we consider its causes. The American goods were fresh; some of them were not dyed till the last week before being placed in the show-cases. The foreign goods had suffered the disadvantage of an ocean voyage, of more handling



in packing and unpacking, and perhaps, of longer exposure to light before starting. It is believed that fabrics lose color while in the hold of a vessel at sea. Persons accustomed to judge of colors perceive at a glance a marked difference between goods that have been thus transported and those that are newly dyed. As bearing on this point it is alleged that French cordonnet yarns are brought here "in the gray" to be dyed, because their colors thus obtained are brighter than if they were dyed abroad.

The loss of freshness is not confined to fancy colors; it is noticeable even in black dress silks. Perhaps it is not wholly due to the voyage. All the operations of manufacture are conducted more slowly on the other side of the Atlantic than here, and there are credible instances of European goods being six months on the loom. Exposure to light during weaving does certainly have a marked effect, and some experts claim that they can see a difference between the product of a loom which is near an unshaded window, and one in a darker part of the factory. Granting the correctness of these statements, it would seem to follow that *all* imported silk goods are more or less damaged; but we should hesitate to make such an assertion.

When anilines were first introduced, more than twenty years ago, the fault was generally found with them, that they lacked permanence. That defect has been measurably removed. With every year the dyers have learned better how to make such colors "fast." The more delicate a shade is, the more fugitive it is likely to be, and since the anilines exceed all other tints in delicacy, the difficulty of fixing them is by so much the greater. But all colors, even those solid and sombre ones that were made in olden times, if applied to textile fabrics, fade somewhat by exposure. The most that we can hope for the new colors is that they will be made as "fast" as the old ones, and this, the dyers say, is a result already almost reached. They claim it now, for their reds.

In the choice of colors Americans are fastidious. The ladies insist upon certain harmonies of hue in their apparel, more strenuously than Europeans. If fashion prescribes some *outré* shade or a bizarre mixture of tints, it may be accepted abroad, but in our Atlantic cities it must be toned down to moderation. It is said that more careful and accurate matching of colors is required here than in Europe. This applies to all kinds of silk goods—sewing silk, fringes, millinery and trimmings. It is not so evident why a similar taste should be expended on silk linings,

which are destined to be hidden from view when in use ; but even these, whether for male or female wear, must be of choice colors.

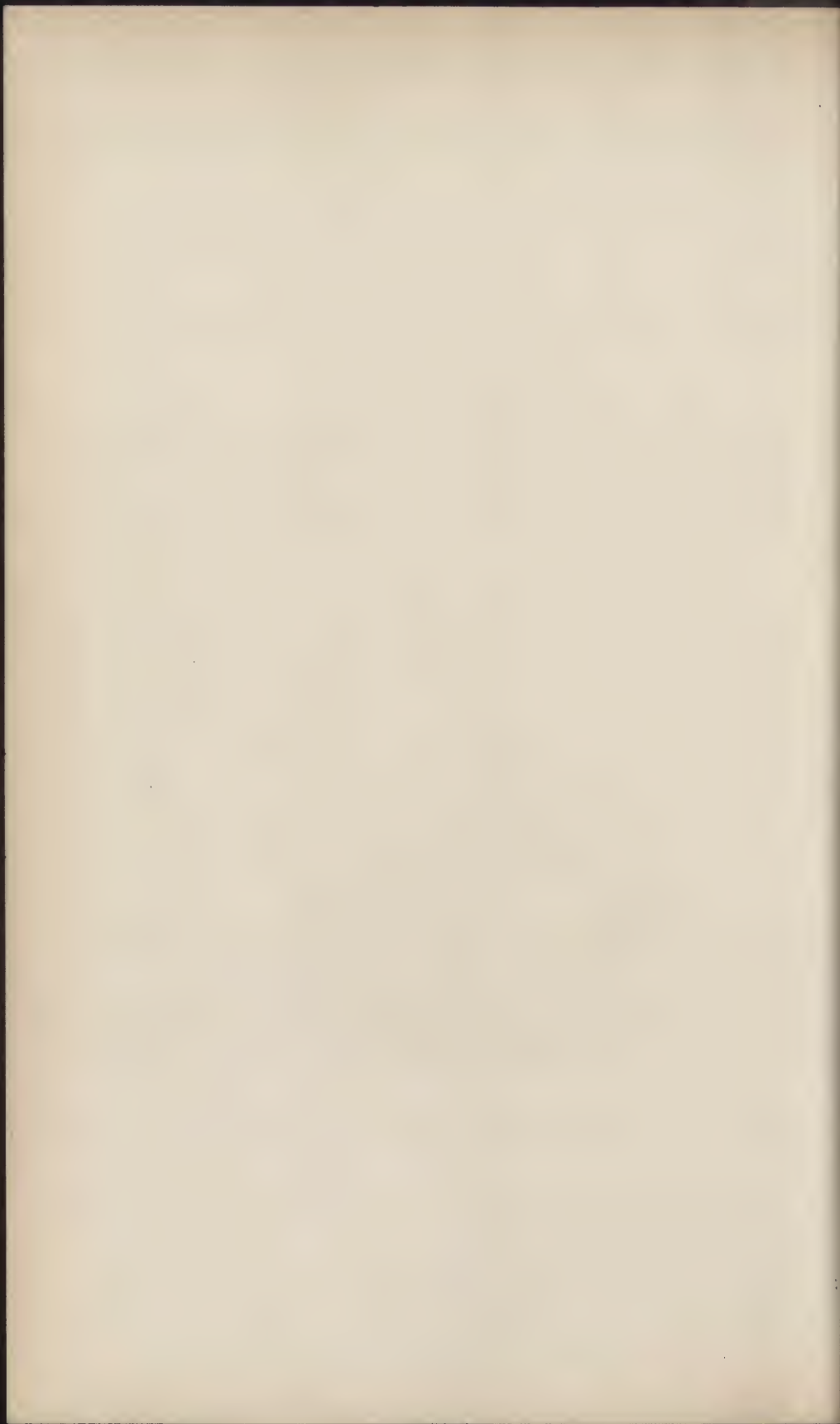
The chemical dyes are imported, and are the best of their kind ; better, it is said, than Europeans use for their own silks. A part of the black dye is made in this country from native woods, and is highly commended.

The school in which most of our older manufacturers learned what they know about dyeing was in making sewings and twist. The black dye was more difficult to perfect than the colors, but their success was at last complete. Nevertheless, similar trouble was experienced when black dress silks first began to be extensively made here. But the dyeing of those fabrics has so decidedly improved within a few years, that it is claimed now to be fully equal to the best in Europe. As to weighting with excess of minerals, let it not be supposed that our dyers are ignorant of the art. If our manufacturers want loaded silks, they can have them weighted in this country, to order. In most instances, however, they may safely repeat the famous comment of Mark Twain upon the legend asserting that Washington couldn't tell a lie : "*I can, but—I won't.*"



As a part of the history of recent advances in the industry under review, the Seventh Annual Report of the Silk Association of America is herewith presented. This summarizes the progress made during the past year in the silk manufacture of this country, and gives valuable statistics relating to the trade. An address concerning a project for a Franco-American treaty, and a reply to the same, are included in the report.





SEVENTH

ANNUAL REPORT

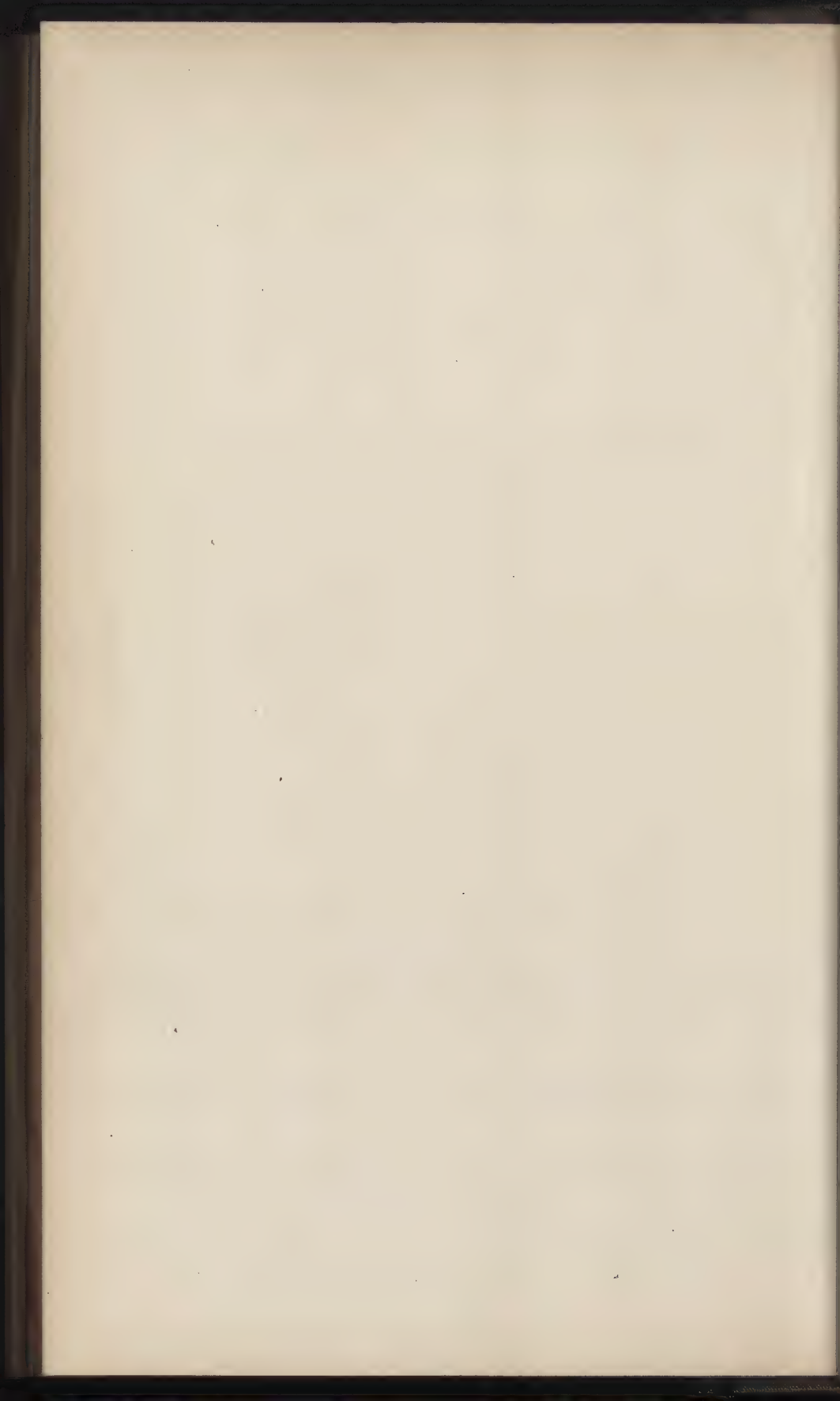
OF THE

SILK ASSOCIATION

OF AMERICA.



WEDNESDAY, MAY 14th, 1879.





THE  
Silk Association of America.

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1771

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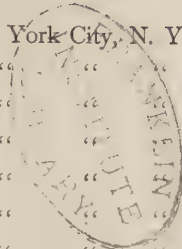
OF THE SILK ASSOCIATION OF AMERICA.

1879.

Armstrong, Benj. A.,	- - -	469 Broadway, New York City.
Aub, Hackenburg & Co.,	-	20 North 3d Street, Philadelphia, Penn.
Auffmordt, C. A. & Co.,	33, 35	Greene Street, New York City, N. Y.
Belding, Milo M.,	- - -	456 Broadway, " " "
Belding, A. N.,	- - - - -	Rockville, Conn.
Belding, D. W.,	- - - - -	Cincinnati, Ohio.
Belding, H. H.,	- - - - -	Chicago, Ill.
Bernstein, Samuel,	- -	479 Broadway, New York City, N. Y.
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Boissière, E. V. de,	- -	Williamsburgh, Franklin Co., Kansas.
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Bridge, Frederick,	- -	32 Burling Slip, New York City, N. Y.
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Busch, Peter,	-	cor. Grand and Mercer Street, " " "
Buzby, J. E.,	- - -	54 Beaver Street, " " "
Caswell, John C. & Co.,	- -	87 Front Street, " " "
Caula, Victor,	- - - - -	Jersey City Heights, N. J.
Chaffee, O. S. & Son,	- - - - -	Mansfield Centre, Conn.
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Cheney, Knight D.,	- - - - -	" " "
Cheney, James W.,	- - - - -	" " "
Cheney, John S.,	- - - - -	" " "



Cheney, Richard O.,	- - - - -	South Manchester, Conn.
Cheney, Harry G.,	- - - - -	" " "
Clapp, S. W.,	- - - - -	7 Mercer Street, New York City, N. Y.
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Fenner, A. B.,	- - - - -	Central Village, Conn.
Fogg, Wm. H.,	- - - - -	32 Burling Slip, New York City, N. Y.
Franke, Louis,	- - - - -	489 Broadway, " " "
Fukui, M.,	- - - - -	58 Walker Street, " " "
Funke, Hugo,	- - - - -	19 Greene Street, " " "
Gerson, Julius,	- - - - -	94, 96 Thomas Street, " " "
Gibbes, A. H.,	- - - - -	93 Wall Street, " " "
Givernaud, Louis,	- - - - -	46 Howard Street, " " "
Grimshaw, John,	- - - - -	Paterson, N. J.
Graham, J. C.,	- - - - -	525, 527 Cherry Street, Philadelphia, Penn.
Grant, James,	- - - - -	143 Duane Street, New York City, N. Y.
Hadden & Co.,	- - - - -	33 Chambers Street, " " "
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Hayes, Thos. F.,	- - - - -	5-9 Union Square, " " "
Hayden, J. H.,	- - - - -	Windsor Locks, Conn.
Hill, A. G.,	- - - - -	Florence, Mass.
Horstmann, F. O.,	- - - - -	Fifth and Cherry Streets, Philadelphia, Penn.
Hovey, F. S.,	- - - - -	248 Chestnut Street, " "
Itschner, W. & Co.,	- - - - -	233 Chestnut Street, " "
Jennings, A. G.,	- - - - -	428 Broome Street, New York City, N. Y.
Jennings, Warren P.,	- - - - -	428 " " " " "
Johnson, Rowland,	- - - - -	54 Beaver Street, " " "
Lambert, C.,	- - - - -	Paterson, N. J.
Lathrop Bros.,	- - - - -	Northampton, Mass.
Lockhardt, C. F.,	- - - - -	73 Leonard Street, New York City, N. Y.
Low, A. A.,	- - - - -	31 Burling Slip, " " "



Low, Seth, - - -	31	Burling Slip, New York City, N. Y.
Low, Ethelbert M., - -	31	" " " " " "
Low, A. Augustus, - -	31	" " " " " "
Ludwig, E., - - -	19	Mercer Street, " " " " " "
Lyman, Joseph, - -	31	Burling Slip, " " " " " "
Meyenberg, S. M., -	40	Lispenard Street, " " " " " "
Milton, W. F., - -	159	Maiden Lane, " " " " " "
Morgenroth, Gust. A., Jr.,	159	" " " " " "
Murray, Russell, - -	68	Greene Street, " " " " " "
O'Donoghue, D., - -	51	" " " " " "
Paul, Frank, - - -	16	Bonaventure Street, Montreal, Canada.
Pelgram & Meyer, - -	57, 59	Greene Street, New York City, N. Y.
Phipps, Walter T., - -	56	Worth Street, " " " " " "
Richardson, B., - - -	5	Mercer Street, " " " " " "
Richardson, F. G., - -	5	" " " " " "
Richardson, Geo. P., - - - - -	-	Cincinnati, Ohio.
Rossmässler, Richard,	319-323	Garden Street, Philadelphia, Penn.
Ryle, Wm., - - -	54	Howard Street, New York City, N. Y.
Ryle, Wm. T., - - -	54	" " " " " "
Ryle, John C., - - - - -	-	Paterson, N. J.
Scott, John J., - - - - -	-	" " " " " "
Seavey, S. W. C., - - - - -	-	Canton, Mass.
Silbermann, J. & Co., -	21	Mercer Street, New York City, N. Y.
Simes, Chas. F., - -	46	Howard Street, New York City, N. Y.
Simon, Hermann, - - - - -	-	Town of Union, N. J.
Simon, Robert, - - - - -	-	" " " " " "
Simonds, J. H., - - - - -	-	Warehouse Point, Conn.
Skinner & Co., George B.,	27	Mercer Street, New York City, N. Y.
Skinner, William, - - - - -	-	Holyoke, Mass.
Smith, Benj. D., - -	113	Water Street, New York City, N. Y.
Smith, L. Bayard, - -	77	William Street, " " " " " "
Smith, S. K., - - - - -	-	Pittsfield, Mass.
Smith, L. O., - - - - -	238	Market Street, Philadelphia, Penn.
Stanton, W. A., - - - - -	-	Chicago, Ills.
Stearns, John N., - -	458	Broome Street, New York City, N. Y.
Stearns, Henry K., -	458	" " " " " "
Stelle, L. R., - - - - -	-	Sauquoit, near Utica, " "

Strange, A. B.,	-	-	42, 44 Greene Street,	New York City,	N. Y.
Strange, Theodore A.,	-	-	42, 44 Greene Street,	"	"
Strange, Wm.,	-	-	-	-	- Paterson, N. J.
Struss, W. H.,	-	-	489 Broadway,	New York City,	N. Y.
Takaki, Samro, Consul of Japan,	-	-	7 Warren Street,	"	"
Tilt, Albert,	-	-	-	-	- Paterson, N. J.
Van Winkle, Stephen,	-	-	-	-	"
Walker, John T.,	-	-	81 Pine Street,	New York City,	N. Y.
Walter, Richard,	-	-	472 Broome Street,	"	"
Warner, Luther J.,	-	-	-	-	- Northampton, Mass.
Weidmann, Jacob,	-	-	-	-	- Paterson, N. Y.
Wetmore, Cryder & Co.,	-	-	74 South Street,	New York City,	N. Y.
Wilson, H. B.,	-	-	33, 35 Greene Street,	"	"
Wood, Payson & Colgate,	-	-	64 Pine Street,	"	"

## HONORARY MEMBERS.

Allen, Franklin,	-	-	113 East 23d Street,	New York City,	N. Y.
Dale, Thos. N.,	-	-	-	-	- Paterson, N. J.
Haywood, George M.,	-	-	90 Franklin Street,	New York City,	N. Y.
Mackay, J. P., Sec'y,	-	-	-	-	- Paterson, N. J.





# SECRETARY'S REPORT.

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In conformity with the by-laws of the Association, the Secretary has the honor to submit the following report, prepared under direction of its Board of Government, and presenting a review for the past year of the transactions and the condition of the Silk Association of America.

The past twelve months in the silk industry of this country have witnessed no great failures, and, on the other hand, no instances of remarkable prosperity. Perhaps it is with industries as with nations; they are happiest when they furnish little material for history. The main reason why there have been fewer vicissitudes in the business than in previous years, is because there has been less disturbance than usual at the hands of Congress. Since the defeat of the Wood Tariff bill, there have been no serious attempts to alter the duties on imports. From the experience of the past year we can form some notion of how much more securely and satisfactorily business could be conducted, if the tariff policy of the country were fairly permanent.

An almost continuous decline in the prices of raw silk has taken place during the greater part of the year. The market has recently become firmer at the same prices as those of February, which were at a lower point than had been reached during thirty years, and very far below those which ruled from 1865 to 1872 and during the excitement of 1876. The fall of values in the past year on the different kinds of raw silk was from 20 to 30 per cent., and at that point it now (May 14th) remains. The unsettled condition of European affairs and the slender prospect of good prices for silk fabrics gave the chief occasion for the decline; the crops of raw silk having been fairly up to an average, though not unusually large. It is probable also, that a lack of accurate knowledge of the stock on hand in Continental Europe has helped to bring about this result. Statistics on this point have been imperfect and have helped in creating misapprehensions. That was the chief cause of

the great fluctuation in 1876 ; the past year probably began with a mistake in underestimating European stocks, and ended in overestimating them.

More silk has been consumed in manufacture than during preceding years. This has been quite notably the case in this country, where the imports were greater by 38 per cent. than in the previous twelve months, and 20 per cent. over 1876 ; it was also true of England, and even the conditioning-house at Lyons recorded increased receipts, though the trade of France was not considered prosperous. Tables are appended, showing the receipts of raw silk at the ports of New York and San Francisco, by months, for several past years, and also exhibiting the separate amounts from Japan, China and Europe. A new feature in the currents of trade has been the increase of importation of raw silk from Asia through the Suez Canal and the Mediterranean, direct to New York. As the greater part of the Asiatic invoices come across the Pacific Ocean, and thence are brought hither by rail, it follows that silk has been travelling simultaneously two opposite ways around the world, though starting from the same point and going to the same destination.

There has been a large increase in the receipt of raw silk from Japan. The quality has not, however, been quite satisfactory in all instances, owing to a want of care in preparing this silk for the market. The defect has been specially noticed in respect to the Kakedas. The silk from the best filatures is not open to this criticism. The deservedly good repute of Japanese silk was only won a year or two ago by diligent effort ; it can be lost even more rapidly, by carelessness. The importations from China have also increased during the year, but the silk has not improved in quality, being adulterated at least as much as hitherto. The export of silk from Hong Kong to our ports was nearly twice as great as in 1877, and 16 per cent. over 1876 ; from Shanghai, it was 60 per cent. over 1877, and 30 per cent. over 1876 ; from Yokohama, it was 148 per cent. over 1877. European raw silks have been much depressed in prices and relatively cheaper than the Asiatic product, during the past year.

With the decline in the value of raw material, manufactured goods have become cheaper. It is not, however, so easy to make a comparison of their prices, because the fabrics made by most of our weavers differ in kind from those of previous years, being produced at greater

expense in machinery and labor. The decline of prices is most noticeable in the sewings and twist branch of the business, and is brought about by an exceedingly keen home competition. It seems to be an invariable rule in the silk trade, that whenever our manufacturers in any branch attain control of the domestic market, so that foreign competition ceases, a sharp rivalry at home keeps down prices and profits effectually. The want of harmony thus indicated between members of the trade is a subject for regret. It brings, however, a few consolations. In view of the fact that along with the exclusion of foreign goods there is always a lower price established for the domestic product, there is no room for the fallacious argument of opponents of the tariff, that a protective duty makes goods cost more to the consumer.

Although the amount of raw material used during the year was larger than before, the total value of goods made was not much greater. Estimates, based on rather slender returns, indicate that the decline in prices has nearly offset the increased production.

The absence of tariff excitements and the lowering of the prices of raw material have permitted our manufacturers to make many costly experiments and improvements during the past year, which were demanded by marked changes of fashion. The general tendency in woven goods has been toward work of a higher grade, richer in silk and more elaborate in pattern.

This may be most readily illustrated by the course of the ribbon trade. The year opened with a demand for satin gros-grain ribbons. No marked confidence was felt in this demand, and few manufacturers were willing to assume the expense of altering looms to meet a want that was supposed to be transient. A ribbon of this class was regarded as too heavy for summer wear, and hence, unlikely to be called for as the season advanced. But the demand continued and gradually increased. Meanwhile gros-grain ribbons began to be neglected, and could only be sold at reduced prices: in the Fall they were almost superseded by the new fashion. A richer class of goods was then required. Two-toned ribbons, satin on each side, but one side striped, came largely into vogue; and fancy ribbons were also much sought for. Some of the manufacturers who had not anticipated such demands, did not alter their looms to make double-faced goods till early in the present season.

The mills have been very fully employed during the year, but the



great expense of altering machinery to meet the new requirements, and the decrease in value of the goods on hand, have proved serious drawbacks. At the beginning of the present season there was a sudden and decided demand for figured and jacquard work, and among fancy ribbons, for some containing tinsel threads. There had never been any great call for goods of these classes before, and few of our manufacturers were at first prepared. Now, nearly all of our mills are equipped to produce these articles, but a steady demand for such goods will be necessary to reimburse the outlay in machinery.

The depreciation in the value of gros-grain ribbons has continued until prices have been reached that are lower than the cost of manufacture. There are symptoms of a slight recovery of value, however, in view of the gradual exhaustion of the stock on hand. It is a home competition along with the absence of demand that keeps down the price below the margin of profit; the foreign ribbons do not seriously interfere.

What has been said of ribbons is true in a general way of several other branches of silk manufacture. Our mills are now capable of making a great variety of costly and elaborate goods which were never before attempted in this country, and nearly all the new improvements are devised for use with power-looms. But this capacity for work has been attained at great expense, and the question of ultimate profit or loss is in many cases still open.

A decided advance has been attained in the production of dress silks. There are more of them made, and the goods are of a higher class than ever before. In point of purity—freedom from overloading with dye—these fabrics have no competitors. If they are steadily kept up to this standard, there is every prospect of their displacing the loaded silks of Europe in our market, by supplying a better and hence a cheaper article. Two or three years ago a manufacturer at work on broad silks was somewhat a rarity; now nearly all our weaving mills are producing such goods. There has been a marked improvement in grenadines, both figured and satin-striped. Many novelties have been required in woven fabrics of every kind, and also in laces. It seems to have been a peculiarity of the changes of fashion in all departments of the silk trade during the year, that they entailed heavy expense for alterations at the factories.

Compared with the other large industries of the country, the silk manufacture has been remarkable for the steadiness with which it has

kept its operatives at work. In Paterson, for instance, it is claimed that one-fourth of the entire population is employed in this industry, and statistics have been published which seem to prove this statement. There have been no strikes of importance—none worthy of record. The demand for cheapness of fabrics, which is characteristic of the present period in all textile industries, has been met in our silk mills by more skillful work, greater economy, less waste; and this result has been partially brought about by the improvement of the operatives, who have learned better how to perform their duties. In all departments, the home competition has been sufficiently severe to keep down prices, and silk goods never were cheaper. The wages paid to operatives here are very much higher than those paid for similar work in Europe, after making liberal allowance for the difference in the cost of living—which is not now nearly so great as formerly. We are assured that many of the frugal working-people in our silk mills are laying aside a fair portion of their earnings, as is shown by the records of the savings banks. Most of the men were originally immigrants from Europe. Having now full employment for themselves and families, they make the most valuable kind of American citizens—people who earn their living.

The Silk Association of America has a pleasant record of its own affairs to lay before its members. In previous years the custom has prevailed of raising about two-thirds of the income for its support, by calling on the members for contributions. This was felt as a heavy burden, latterly falling upon a few concerns whose liberality had to be largely taxed. With the beginning of the present financial year, a change was resolved upon—to base the support of the Association on the regular dues of members. The difficulty of carrying out this intention was somewhat increased by the expense of removal from the old office to the present quarters, and of double the former rent.

The removal to 44 Howard Street has proved of decided advantage to the Association, giving an office that is nearly twice as large as the old one, is more easily accessible, and is in the neighborhood of a great majority of the members who have offices in the city. The weekly and monthly reports and the general work of the office have been kept up to the full standard of efficiency. The active membership of the Association—the number of members that actually pay their dues—has been doubled within the year. By close economy in expenditures, the pro-

gramme of keeping within the income from memberships has been practically carried out. The finances of the coming year can be put on an equally satisfactory basis, if there is a further increase of membership to meet some additional expenses, and to provide for a few resignations due to changes in business.

WM. C. WYCKOFF,  
*Secretary.*

At the annual meeting of the Silk Association of America, held on Wednesday, May 14th, 1879, at No. 44 Howard Street, N. Y., the foregoing report was read, accepted, and ordered to be printed.





## STATISTICS.

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A brief explanation of the following statistics may contribute to their usefulness. There are two tables of the imports of raw silk at the ports of New York and San Francisco : the quantity that arrives elsewhere in the United States is inconsiderable. The number of sales as stated in the tables is accurate ; their valuation, as furnished by Custom House returns, is probably only approximate. The smaller table of imports of raw silk is brought down to a later date than the Secretary's report, and indicates the proportion of the supply derived from different sources. The chart of raw silk prices shows vividly the great fluctuations in the value of that material, though not including the very recent rise.

The tables of imports of silk manufactures at the port of New York shows that, on the whole, these imports are not largely increasing, year by year, and that in certain lines they are falling off. With the revival of general prosperity among consumers, we may, however, expect an increase in the importation of all articles of luxury for a few years to come. In drawing deductions from the figures of this table, two things should be considered ; first, the values assigned are those of the invoices, and are made as low by the importers as the Custom House authorities will permit ; it is believed, in fact, that the goods are largely undervalued. The official reports of investigating commissions appointed by the U. S. Government have estimated the undervaluation as on the average not less than 25 per cent. Second, the duty paid on these goods, and the importers' profits, should be added to the invoices, in any calculation of the value of these imports in the United States markets. Of all the silk goods brought into this country, 94 to 95 per cent. come to the port of New York.

Three tables are presented, showing the total exports from France of silk manufactures. The first of these covers a period of half a century, and exhibits a remarkable decline in recent years. The next table, naming the countries to which France has exported silk goods from 1868 to 1877, will serve to show in what directions her trade has increased, and in what diminished : the changes have arisen from many and complicated causes. Another table distinguishes the classes of silk goods embraced in French exports during the period last named, and is exceedingly suggestive.

The tables of United States exports to and imports from France furnish data that may be of service, in case the Franco-American treaty project should require any further consideration.

The table of United States imports entered for home consumption, shows distinctly the sources of the public revenue from Customs duties. It will be noticed that silk goods stand third in the list of articles contributing to that revenue.

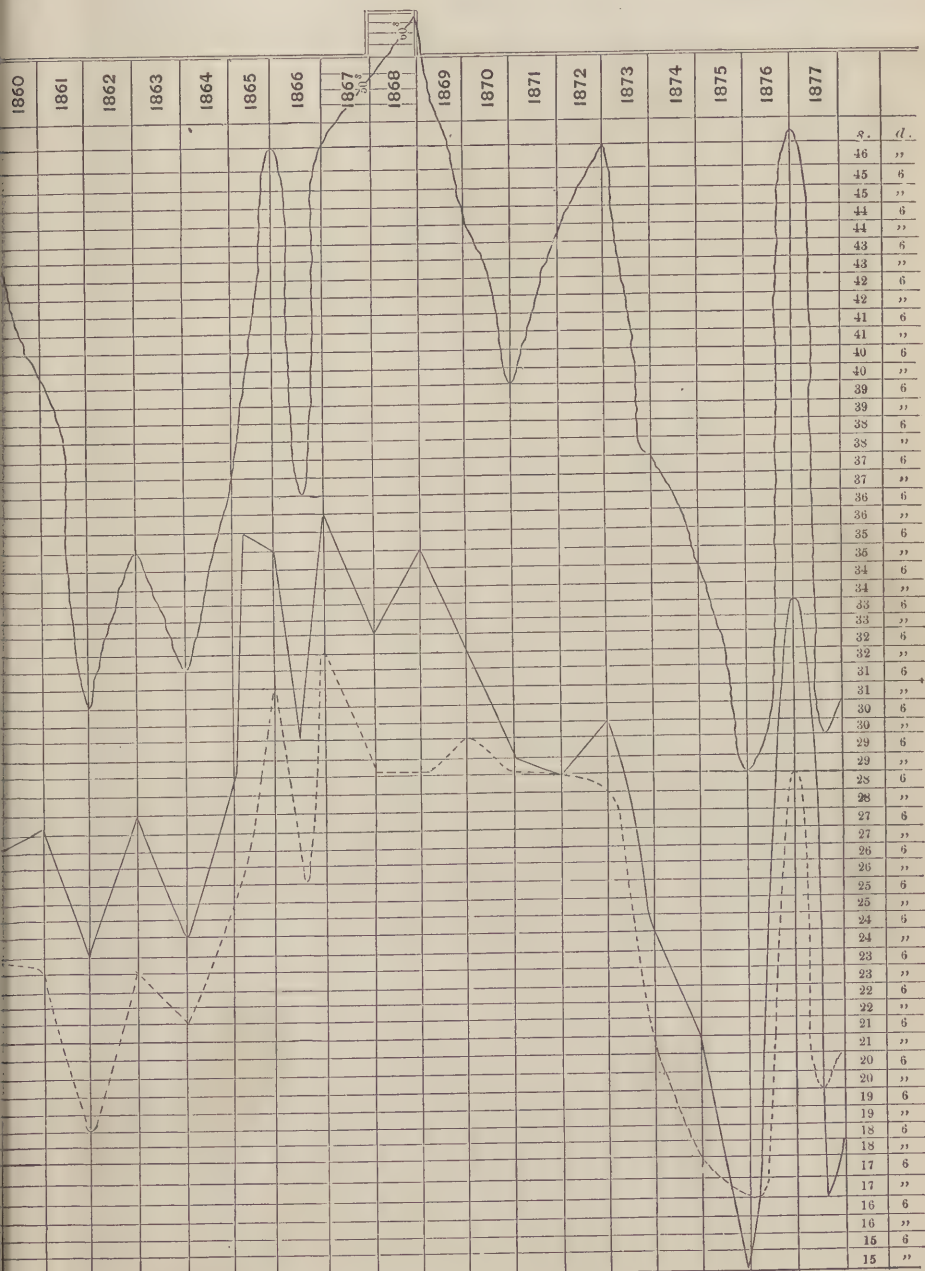


## FLUCTUATIONS OF RAW SILK:

LONDON PRICES: by H. ZWEIFEL &amp; Co.

Upper line, waved,  
Middle line,  
Lower line, dotted,

Best Italian Organzine.  
Japanese Maibash.  
Chinese Tsatlee III.





# IMPORTS OF RAW SILK AT THE PORTS OF NEW YORK AND SAN FRANCISCO,

*From April 1st, 1878, to June 30th, 1879.*

		From England and Continent.	Japan.	Hong Kong.	Shanghai.
		BALES.	BALES.	BALES.	BALES.
1878.	April, - -	255	223	118	403
	May, - -	152	188	240	452
	June, - -	95	145	308	420
	July, - -	85	102	79	249
	August, -	185	121	54	264
	September, -	276	305	145	538
	October, -	137	343	522	731
	November, -	179	404	529	821
	December, -	330	436	541	392
1879.	January, - -	123	—	—	—
	February, -	533	535	611	814
	March, - -	483	368	172	332
	April, - -	224	340	427	360
	May, - -	253	121	204	330
	June, - -	613	240	380	674
Total in 15 months, -		3,923	3,871	4,330	6,780

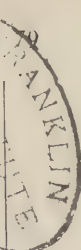
Compiled by the Secretary of the Silk Association of America.

IMPORTS OF RAW SILK AT THE PORTS OF NEW YORK AND SAN FRANCISCO,  
IN THE CALENDAR YEARS.

THE SILK ASSOCIATION OF AMERICA.

MONTHS.	1878.		1877.		1876.		1875.		1874.	
	BALES.	VALUE.	BALES.	VALUE.	BALES.	VALUE.	BALES.	VALUE.	BALES.	VALUE.
January,	800	\$422,682	974	\$666,506	1,548	\$625,009	641	\$273,344	264	\$110,070
February,	950	492,027	1,271	810,547	1,158	478,466	639	261,360	665	280,489
March,	1,170	616,573	1,342	879,466	1,267	519,959	1,536	659,180	889	511,517
April,	999	515,329	334	218,914	568	258,641	410	196,956	608	304,765
May,	1,029	405,143	975	493,559	895	345,759	1,062	472,455	583	307,367
June,	968	436,531	836	476,099	961	401,519	1,116	500,295	570	260,786
July,	515	258,485	195	121,769	133	51,072	268	139,772	366	186,192
August,	624	285,374	688	324,613	195	85,541	482	298,596	334	201,719
September,	1,260	653,607	892	464,476	1,323	651,194	1,137	675,731	745	363,219
October,	1,734	882,085	793	352,850	735	480,616	955	572,840	451	217,807
November,	1,963	988,248	389	196,640	976	696,343	1,257	721,323	798	356,915
December,	1,722	851,641	1,224	585,645	1,478	1,006,758	1,049	555,890	1,179	526,521
Total,	13,734	\$6,807,725	9,913	\$5,591,084	11,237	\$5,600,877	10,552	\$5,327,742	7,452	\$3,627,367

Compiled by the Secretary of the Silk Association of America, 44 Howard Street, New York.



IMPORTS OF SILK MANUFACTURES AT THE PORT OF NEW YORK,  
IN THE CALENDAR YEARS.

ARTICLES.	1878.	1877.	1876.	1875.	1874.	1873.	1872.	1871.	1870.	1869.
Silks, - - - - -	\$11,834,931	\$11,978,135	\$12,707,192	\$12,639,397	\$10,581,299	\$9,764,650	\$11,080,001	\$13,650,246	\$11,056,552	\$9,325,545
Satins, - - - - -	50,219	26,795	41,403	107,501	259,756	205,524	334,403	312,060	413,325	423,181
Crapes, - - - - -	372,231	397,905	504,277	470,806	641,380	577,575	459,727	409,287	320,119	262,766
Pongees, - - - - -	394	2,617	...	10,126	2,629	561	...	451	124	6,231
Plushes, - - - - -	101,198	73,777	85,668	125,722	127,045	221,421	399,485	367,159	236,273	210,460
Velvets, - - - - -	1,510,240	1,049,305	1,384,450	1,151,427	1,087,131	888,143	1,512,590	1,793,906	1,102,772	889,705
Ribbons, - - - - -	1,829,838	1,689,413	1,837,537	2,984,271	3,180,647	4,740,040	8,307,009	7,815,744	6,849,780	5,282,968
Laces, - - - - -	921,265	1,158,689	1,248,740	1,030,055	1,708,181	1,960,672	2,218,452	2,153,989	1,467,761	1,287,250
Embroideries, - - - - -	...	2,020	...	699	1,224	2,644	985	2,625	86	5,100
Shawls, - - - - -	5,519	5,611	5,831	71,981	151	5,345	9,236	14,889	28,991	18,863
Gloves, - - - - -	112,941	41,189	29,812	46,622	23,571	40,396	17,337	31,186	19,067	17,040
Cravats, - - - - -	101,049	55,777	50,271	411,689	186,730	115,663	173,742	135,382	74,625	112,307
Handkerchiefs, - - - - -	48,761	49,932	46,294	117,368	38,754	25,862	23,357	39,837	20,363	15,468
Mantillas, - - - - -	...	...	573	...	...	...	...	...	2,071	20,469
Vestings, - - - - -	...	...	2,427	3,608	2,467	53,431	66,621	54,817	34,540	18,167
Hose, - - - - -	48,955	34,128	55,618	46,790	26,958	42,323	34,836	30,209	14,505	22,446
Sewings, - - - - -	50,632	81,764	16,557	11,367	37,898	31,611	51,030	105,565	38,563	27,447
Braids and Bindings, - - - - -	935,933	1,143,737	964,883	1,200,555	1,038,320	1,033,966	1,044,644	962,913	426,035	637,767
Silk and Worsted, - - - - -	136,065	136,194	165,714	421,791	476,561	599,967	707,176	1,064,137	968,623	689,073
Silk and Cotton, - - - - -	1,981,899	1,992,033	2,034,823	2,312,654	3,876,952	4,064,077	6,253,392	4,566,028	3,619,497	2,740,634
Silk and Linen, - - - - -	660	3,720	10,316	3,689	3,897	5,511	73,726	389,280	37,543	50,615
Total, - - - - -	\$20,042,730	\$19,922,741	\$21,192,386	\$23,168,118	\$23,292,551	\$24,379,322	\$32,677,749	\$33,809,719	\$26,731,275	\$22,064,312

Compiled by the Secretary of the Silk Association of America, 44 Howard Street, New York.



# EXPORTS OF SILK MANUFACTURES FROM FRANCE.

TOTALS FOR 50 YEARS. COMPILED FROM OFFICIAL RECORDS.

VALUES IN MILLIONS OF FRANCS.

YEARS.	Plain Silks.	Figured Silks.	Mixtures of Silk with other Textile.	Silk Ribbons.	Sundry Silk Goods.	Total Silk of all kinds.
	Millions.	Millions.	Millions.	Millions.	Millions.	Millions.
1827	51.8	19.7	4.0	24.4	15.9	115.8
1828	51.0	18.3	4.8	27.5	13.8	115.4
1829	46.1	17.4	6.8	26.5	14.3	111.1
1830	51.3	19.0	5.9	22.9	12.0	111.1
1831	59.6	17.8	4.7	24.3	12.9	119.3
1832	51.3	17.7	5.1	28.2	9.5	106.8
1833	69.4	21.4	4.7	30.7	12.7	138.9
1834	53.4	17.7	4.7	23.3	13.0	112.1
1835	63.3	24.7	5.9	33.2	17.3	144.4
1836	59.9	24.7	5.8	32.8	16.9	140.1
1837	38.2	12.9	5.4	22.4	11.4	90.3
1838	60.3	21.3	3.9	34.6	19.3	139.4
1839	59.8	25.1	5.2	35.3	15.4	140.8
1840	60.4	28.8	6.6	29.3	16.8	141.9
1841	61.4	40.2	8.9	34.2	17.4	162.1
1842	43.8	28.5	8.4	19.8	11.6	112.1
1843	48.8	34.2	8.7	23.8	14.1	129.6
1844	54.3	33.0	11.1	31.1	14.2	143.7
1845	50.0	34.8	11.5	31.6	13.0	140.9
1846	53.1	31.1	10.9	35.1	16.4	146.6
1847	54.2	33.2	11.1	36.3	14.2	149.0
1848	60.3	18.2	8.3	41.7	10.8	139.3
1849	84.4	29.2	12.6	50.4	16.2	192.8
1850	104.0	32.5	18.3	68.8	22.9	246.5
1851	113.6	27.7	14.4	55.8	28.1	239.6
1852	121.9	34.0	16.8	75.5	31.5	279.7
1853	151.7	44.4	28.6	111.8	32.8	376.3
1854	122.0	33.7	23.0	96.6	36.0	311.3
1855	141.7	39.2	19.0	116.8	41.6	358.3
1856	178.8	72.0	18.9	131.9	52.3	453.9
1857	170.6	75.5	24.7	112.4	52.3	435.4
1858	156.2	57.0	22.9	95.5	47.0	378.6
1859	201.2	66.1	41.6	136.8	54.2	499.9
1860	212.8	49.6	63.9	70.3	58.2	454.8
1861	162.3	26.5	59.2	44.3	41.0	333.3
1862	193.1	29.6	59.7	47.3	33.8	363.5
1863	221.4	30.3	33.1	49.1	36.4	370.3
1864	270.1	24.3	25.2	47.4	41.2	408.2
1865	289.7	12.3	17.1	67.2	42.2	428.5
1866	309.9	7.0	15.0	88.2	47.6	467.7
1867	293.8	9.1	18.4	61.1	40.0	422.4
1868	323.3	7.6	21.0	56.8	43.0	452.7
1869	312.9	3.7	15.9	77.5	37.3	447.3
1870	351.7	4.0	19.5	64.6	45.2	485.0
1871	316.3	4.3	15.6	113.6	33.2	483.0
1872	317.8	1.8	19.5	51.4	47.2	437.7
1873	351.5	2.7	23.1	55.4	45.8	478.5
1874	323.0	1.5	11.9	42.1	37.5	416.0
1875	278.8	4.3	19.6	34.6	39.3	376.6
1876	197.7	7.5	27.5	20.2	42.8	295.7
1877	153.6	7.4	36.6	19.2	58.3	275.1

## EXPORTS OF SILK MANUFACTURES FROM FRANCE, NAMING COUNTRIES.

COMPILED FROM OFFICIAL SOURCES.

COUNTRY.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.
	Frans.	Frans.	Frans.	Frans.	Frans.	Frans.	Frans.	Frans.	Frans.	
England,	207,740,623	204,075,797	181,264,466	153,583,334	117,492,366	141,558,657	172,153,815	153,920,951	148,154,714	
United States,	43,975,168	67,140,673	134,352,872	146,399,047	120,874,677	100,158,739	90,941,190	80,810,033	64,974,678	The details
Germany,	37,448,360	27,169,845	7,168,999	3,618,343	8,032,404	16,532,740	12,439,777	15,048,752	21,444,135	for this year
Switzerland,	65,195,484	51,901,440	77,792,078	76,523,245	87,777,221	112,327,012	61,387,923	47,959,302	8,243,341	are not yet
Italy,	20,716,805	27,718,259	16,687,458	20,424,886	16,772,828	14,704,598	12,869,169	13,566,823	11,001,801	published.
Belgium,	13,922,559	10,988,103	11,373,861	16,331,405	22,267,855	21,421,540	14,911,691	14,033,291	8,850,215	
Spain,	6,083,243	6,228,084	8,337,618	12,852,842	7,625,631	6,327,241	7,755,559	7,416,899	5,352,094	
Other Countries,	57,245,534	52,118,760	48,116,153	53,353,410	56,888,993	65,475,262	43,558,359	43,842,472	27,649,793	
Total,	452,327,776	447,340,961	485,093,505	483,086,512	437,731,975	478,505,789	416,017,483	376,598,523	295,670,771	275,077,000

# EXPORTS OF SILK MANUFACTURES FROM FRANCE, NAMING ARTICLES.

COMPILED FROM OFFICIAL SOURCES.

ARTICLES.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.
	Francs.	Francs.	Francs.	Francs.	Francs.	Francs.	Francs.	Francs.	Francs.	Francs.
Foulards, plain and printed, -	4,108,956	3,462,172	5,754,288	7,056,184	4,054,736	3,270,468	2,474,060	4,424,608	6,479,716	5,745,637
Dress Goods, plain	323,329,446	312,900,898	351,688,428	316,318,600	317,843,042	351,459,712	323,049,552	278,808,302	197,739,045	153,632,010
“ fancy	7,628,480	3,603,080	4,071,600	4,302,870	1,759,044	2,714,036	1,522,332	4,284,896	7,502,564	7,417,464
“ figured										
and with gold and silver thread, -	845,832	832,348	519,043	1,280,952	522,232	342,050	210,630	760,710	4,959,176	5,851,370
Mixed Goods, -	21,061,045	15,963,578	19,475,738	15,610,530	19,539,592	23,111,800	11,893,362	19,572,170	27,475,760	36,641,440
Grape, plain and fancy, -	974,950	596,096	396,321	446,600	1,009,790	1,640,410	481,870	2,666,345	4,509,525	7,682,740
Tulle, -	9,229,326	10,960,824	11,269,932	9,818,400	13,530,330	17,043,328	13,807,339	8,721,192	7,555,380	8,604,588
Ribbons, inclusive of velvet, -	56,844,060	77,498,589	64,641,420	103,580,615	51,434,355	55,422,109	42,118,900	34,612,152	20,203,343	19,181,702
Gauze, Laces, Millinery Goods, Trimmings, etc., -	28,305,681	21,424,370	27,276,645	24,671,761	28,038,854	23,501,876	20,458,438	22,748,148	19,246,262	30,230,049
Total, -	452,327,776	447,340,961	485,093,505	483,086,512	437,731,975	478,505,789	416,017,483	376,598,523	295,670,771	275,077,000

THE SILK ASSOCIATION OF AMERICA.





## IMPORTS INTO THE UNITED STATES FROM FRANCE.

*Year ending June 30, 1877.*

NOT PAYING DUTIES.		PAYING DUTIES.	
Raw silk, -	\$1,017,339	Silk, manufactures of, -	\$12,709,992
Argols, -	890,756	Wool, " " -	7,735,440
Drugs and Chem- icals, -	620,048	Leather and manufactures of, including gloves, -	4,594,208
Coffee, -	274,384	Wines and spirits, -	3,665,438
Bolting-cloths, -	161,809	Cotton, manufactures of, -	2,231,058
Rags, -	114,862	Fancy goods, -	1,784,970
Chief articles, -	\$3,079,198	Precious stones, Jewelry and Watches, -	1,496,514
All others, except specie, -	1,323,435	Buttons, -	842,647
Total, -	\$4,402,633	Straw, manufactures of, -	784,794
		Sardines, &c., -	686,077
		Drugs and Chemicals, -	598,993
		Furs and dressed Skins, -	781,769
		Fruits, -	521,349
		China and Earthenware, -	544,320
		Glass, manufactures of, -	256,961
		Iron, Steel and other met- als, manufactures of, -	481,926
		Paintings, Engravings, &c. -	378,661
		Flax, manufactures of, -	354,162
		Olive and other Oils, -	315,914
		Chief articles, -	\$40,765,193
		All other dutiable articles, -	2,388,466
		Total, -	\$43,153,659

## SUMMARY.

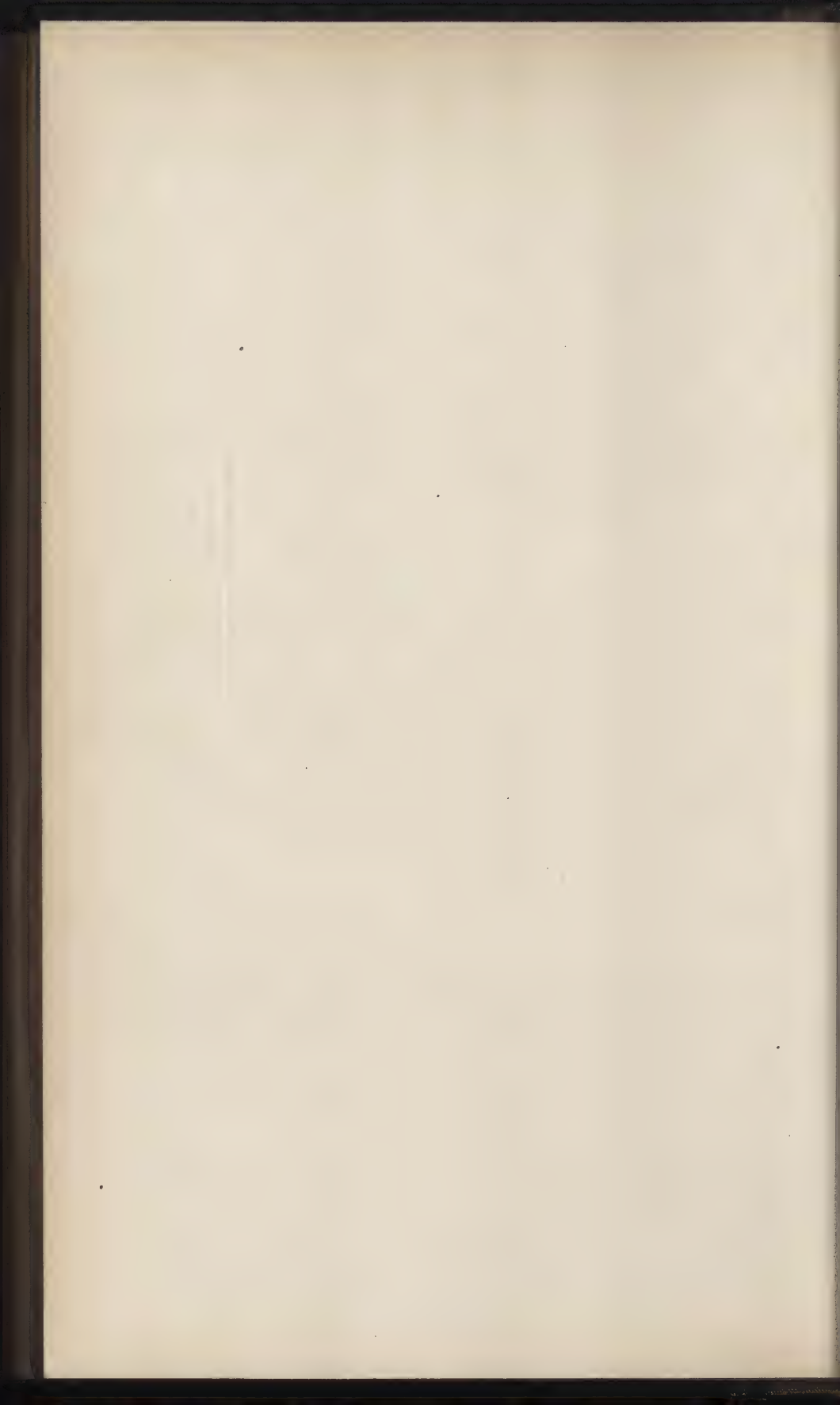
Non-dutiable imports, -	\$4,402,633
Dutiable imports, -	43,153,659

Total imports from France (exclusive of specie,) \$47,556,292

DUTY-PAYING IMPORTS OF THE UNITED STATES.  
HOME CONSUMPTION.—FOR THE YEAR ENDING JUNE 30TH, 1878.

ARTICLES.	VALUE.	DUTY.	TARIFF.	Duty re- duced to Ad Valorem, Per Cent.	Proportion of Total Duties, Per Cent.
Sugar and Molasses, -	87,237,898	38,759,288	mixed.	44	30.52
Wool, and manufactures of, -	32,698,759	19,890,945	"	61	15.66
Silk, manufactures of, -	20,548,583	12,151,042	ad val.	59	9.57
Cotton, manufactures of, -	16,464,305	6,496,961	mixed.	39	5.12
Flax, manufactures of, -	15,703,069	5,211,823	ad val.	33	4.10
Spirits and Wine, -	5,764,373	5,035,314	mixed.	87	3.96
Tobacco, and manufactures of, -	6,073,302	4,604,602	"	76	3.63
Iron and Steel, and manufactures of, -	8,528,541	3,280,648	"	38	2.58
Chemicals, Dyes, Drugs, &c., -	9,813,432	2,810,670	"	30	2.21
Fruits and Nuts, -	10,084,839	2,691,104	"	26	2.12
Tin, and manufactures of, -	9,952,434	2,689,642	"	27	2.12
Leather, and manufactures of, -	7,338,127	2,529,211	ad val.	34	1.99
Glass, and manufactures of, -	3,332,014	1,700,889	mixed.	51	1.34
Earthenware and China, -	3,996,738	1,676,091	ad val.	42	1.32
Fancy Articles, Perfumery, &c., -	3,574,085	1,450,788	"	41	1.14
Hemp, Jute, &c., and manufactures of, -	5,755,262	1,345,254	mixed.	23	1.06
Breadstuffs, exclusive of Rice, -	4,500,213	1,047,408	"	23	0.82
Rice, -	1,109,466	1,034,058	specific.	93	0.81
Embroideries, of Cotton, Silk or Wool, -	2,546,107	891,137	ad val.	35	0.70
Buttons and their materials, -	3,220,608	889,285	"	27	0.70
Spices, -	1,701,647	858,590	specific.	50	0.68
Wood, and manufactures of, -	3,782,710	849,951	mixed.	22	0.67

Salt,	-	-	-	1,546,904	754,383	specific.	49	0.59
Paper, and manufactures of,	-	-	-	1,517,350	518,654	ad val.	34	0.41
Live Animals,	-	-	-	2,553,355	510,670	"	20	0.40
Furs, and manufactures of,	-	-	-	2,134,039	437,954	"	21	0.35
Coal,	-	-	-	1,959,116	437,753	specific.	22	0.35
Books, Charts, &c.,	-	-	-	1,515,723	378,931	ad val.	25	0.30
Sardines and other Fish,	-	-	-	937,270	335,848	specific.	36	0.26
Seeds, (chiefly Flaxseed),	-	-	-	2,212,763	327,505	mixed.	15	0.25
Paints and Colors,	-	-	-	864,773	325,229	"	37	0.25
Oils, including olive-oil,	-	-	-	826,591	324,301	"	39	0.25
Hats, Bonnets, &c.,	-	-	-	771,240	308,412	ad val.	40	0.24
Precious Stones, &c.,	-	-	-	2,973,920	298,165	"	10	0.23
Marble, and manufactures of,	-	-	-	421,660	276,838	mixed.	66	0.22
Clocks, Watches and Materials of,	-	-	-	1,022,473	275,865	ad val.	27	0.22
Straw, manufactures of,	-	-	-	909,885	273,204	"	30	0.22
Malt Liquors,	-	-	-	693,075	250,798	specific.	36	0.21
Provisions and Potatoes,	-	-	-	1,040,602	245,118	mixed.	23	0.19
Metal Manufactures	-	-	-	711,420	222,472	ad val.	31	0.17
Musical Instruments,	-	-	-	532,011	159,603	"	30	0.13
Lead, and manufactures of	-	-	-	304,457	137,112	mixed.	45	0.11
Mats and Matting,	-	-	-	449,008	133,244	ad val.	30	0.10
Firecrackers and Fireworks,	-	-	-	108,014	126,856	mixed.	118	0.10
Soap,	-	-	-	252,379	122,704	"	48	0.10
Brushes	-	-	-	295,413	118,465	ad val.	40	0.10
All other dutiable Articles,	-	-	-	290,280,013	125,194,785		21	1.43
	-	-	-	6,803,396	1,820,400			
Total, -	-	-	-	297,083,409	127,015,185		42 $\frac{3}{4}$	100.00





# FRANCO-AMERICAN COMMERCE.

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SPEECH OF LÉON CHOTTEAU,

*Delegate of the French Committee,*

ADDRESSED TO THE BOARD OF GOVERNMENT OF THE

SILK ASSOCIATION OF AMERICA,

AT A

MEETING ON MAY 13, 1879.

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I now have the honor to address a powerful association which knows how to escape false impressions, and consult only its true interests. Washington, at the time when he resigned his high office, recommended his countrymen to always resist sentiment not agreeing with reason. You follow the principles proclaimed in the farewell speech of the first President of your Republic. Therefore, we shall arrive sooner at a good understanding.

Some prominent men in France and in the United States think it is possible to ameliorate the actual commercial relations of the two countries. They desire that expected progress should not injure American and French industries. You must approve their prudence.

You manufacture silk, and your annual production aggregates a value of more than 20 millions of dollars. Tell us how should a Franco-American reciprocity treaty be concluded in order not to disturb your manufactures.

You will be surprised if I confess that some honest persons contest, at this late day, the usefulness of treaties of commerce. In a city of the United States, which I do not name, they declared: "Countries which were closed had become great, and those which remained open had fallen behind."

If such a remark is true, we ought to find France in deep poverty, since France, from 1860 till now, that is to say, for nearly twenty years, persists in opening her doors. Let us see the facts.

The trade of France, imports and exports joined, gives this result :

1859—\$480,000,000.

1878—\$1,566,000,000.

The 1,566 millions of dollars reveal some new sources of activity. And first a large quantity of loaded ships have gone out from France. In reality :

1859—3,036,000 tons, of which 1,473,000 tons were under the French flag.

1876—5,614,000 tons, of which 2,362,489 tons were under the French flag.

The movement was perceived in the tonnage of merchandise carried by the steam river navigation :

1859—2,616,000 tons.

1876—6,146,034 tons.

The innovation was also advantageous to the railroad lines :

1859—19,047,799 tons carried on 5,706 miles.

1876—62,131,107 tons carried on 12,697 miles.

The French Post Office has no reason to complain. Because :

1859—258,900,000 postal letters, of which 18,456,730 were transmitted abroad.

1875—367,443,307 postal letters, of which 45,300,664 were transmitted abroad.

The Directors of the telegraph companies cannot lament. For, in

1859—598,501 dispatches were forwarded, of which 144,703 were international.

1876—8,080,964 dispatches were forwarded, of which 1,027,249 were international.

French industry, in order to produce more, was obliged to increase its means of action. In :

1859—14,691 steam engines were used in the private industry, representing 169,167 horse power.

1875—32,000 steam engines were used, representing 400,756 horse power.

The well-being of the working men improves also :

1859, December 31st—Owed payment to the depositors of the Savings Banks, \$67,292,336, divided between 1,121,465 small books.

1875, December 31st—\$132,082,793, divided between 2,365,577 small books.

1878, December 31st—Owed payment \$205,291,903.

From all that must result the larger amount of the National Wealth in France :

1859, Value in Capital of the ascertained inheritances, \$480,000,000.

1866—\$1,540,000,000.

You will agree with me that your countrymen from — have been gravely mistaken by asserting that a Treaty of Commerce is always for a people a cause of ruin. The truth is that a Reciprocity Treaty with France would increase your exports, encourage your maritime trade, give a new impulse to your river navigation, raise the receipts of your railroad lines, your post-offices, and telegraphs, double the number of your steam engines, permit your working-men to economize, and bring your national wealth to a more certain and solid basis.

The general interests of the American Republic commend you to sign a Reciprocity Treaty with France : but how can that treaty be concluded in order to protect the special interests of the silk makers of America ?

France exports silk fabrics to Germany, England, Portugal, Spain, Italy, Switzerland, Turkey, United States, Brazil, Argentine Republic, Algeria, Russia, Netherlands, Belgium, Egypt, British India, Mexico, New Granada, Uruguay, Chili, Peru, Spanish Possessions of America, Martinique, and so on. She sent to the above countries, from 1867 to 1876, an annual average of \$85,622,309 worth of silk, of which \$18,250,158 came to the United States.

In 1878, France exported—

Silk Fabrics.....	\$57,742,000
Silks and Silk Flocks.....	28,463,000

In the year ending June 30th, 1878, you received some manufactured silk from abroad :

France.....	\$10,891,287
Germany.....	5,638,362
Great Britain.....	2,797,309
Netherlands.....	390,033
China.....	73,407
Japan.....	19,498
Belgium.....	18,335

Italy .....	2,784
Canada .....	2,763
Hong Kong .....	2,368
Other Countries .....	1,326
	<hr/>
	\$19,837,972

The value of the raw silk imported into the United States is thus divided :

China .....	\$2,957,617
Japan .....	831,353
France .....	721,425
Great Britain .....	526,252
Hong Kong .....	36,002
Germany .....	27,364
Belgium .....	2,505
Canada .....	560
	<hr/>
	\$5,103,084

By adding—

Silk Worms, Silk Worm Eggs and Silk Cocoons .....	\$520,091
Silk Waste and Noils .....	372,392
	<hr/>
	\$892,483

We find that the total import into the United States, in the last fiscal year, amounts to \$25,833,539.

Of that sum France represents \$11,612,712, that is to say 54.90 per cent. of your import of manufactured silk, and 14.14 of your import of raw silk.

In England, silk fabrics are free of duty.

Silk fabrics, or silk flocks, pay, in Germany, per 220 pounds, from \$45 to \$60.

Austria established a tax rising from \$60 to \$80 for the same quantity.

Belgium asks 5 per cent. *ad valorem* for tulles and laces ; and for other silk fabrics \$60 per 220 pounds.

In Spain the duty, per nearly 2 pounds, is from \$1.85 to \$5.94.

Greece, per 220 pounds, demands, according to the kind of fabrics, \$49.20 to \$112.40, or even so much as \$337.40 (velvet, plush and veils.)



In Italy, per nearly 2 pounds, 10c., 30c., \$1 or \$1.60 ; and sometimes from 5 to 10 per cent. *ad valorem*.

Norway taxes, per about 2 pounds, 45 cents or 97 cents.

In the Netherlands, 5 per cent. *ad valorem*.

In Portugal, per about 2 pounds, from \$2.25 to \$7.75.

Russia also, per about 2 pounds, charges \$1.95, \$4.29 or \$9.77.

In Switzerland, per 220 pounds, from \$3.20 to \$6.

At last, Turkey is satisfied with 8 per cent. *ad valorem*.

The above figures permit you to compare them with the United States, where the general tariff says :

Silk fabrics for gowns or in pieces, pure silk ribbons and velvet, or velvet in which silk appears as the principal material, *ad valorem* ..... 60 per cent.

Silk fabrics for waistcoats, shawls, scarfs, mantillas, veils, laces, men and womens' hats, silk cords and fancy trimming, *ad valorem* ..... 60 per cent.

Silk fabrics, non-denominated, in which silk is the principal material, *ad valorem* ..... 50 per cent.

Perhaps you already ask if a practical convention concluded by the two Republics would not permit you to export to France.

From 1867 to 1876 the annual average of the silk fabrics imported into France amounted to \$6,390,138. The countries which formed that sum were England, the English East Indies, China, Germany, Switzerland, Italy and Belgium.

By the general French tariff, silk fabrics coming from countries outside of Europe are free of duty if going directly to France ; but they must pay, if they go through a warehouse of Europe, 5 cents per about 2 pounds net.

The authors of the general tariff had specially in view the silk fabrics from India and China. Here you would have no advantage by accepting the conventional tariff applying to the European nations, since that tariff taxes silk ribbons with 80 cents or \$1 per about 2 pounds net ; silk lace, made with or without silver, from 70 cents to \$2.40 per about 2 pounds net. But the conventional tariff can always be modified, and in all cases would offer you an advantage for silk flocks which are prohibited by the general tariff, or admitted into France under a duty, per 220 pounds net., of from \$48 to \$240.

In 1826, the English, without neglecting foreign markets,

especially secured for themselves their own market. They manufactured some nice silk fabrics. They thought that the high duties, imposed on silk fabrics coming from abroad, proved to the ladies of Great Britain that the home product could not compete with the French product. In order to show that they had confidence in themselves, the manufacturers claimed that the duty on silk fabrics could be reduced from 75 to 30 per cent. *ad valorem*. That reduction gave a new impetus to the production of England. And later, in 1852, some manufacturers of Manchester complained of being yet too much protected. They petitioned their government to abolish the duties on silk fabrics received from abroad, and not partially and by degrees, but wholly and immediately.

The English of 1826 and 1852 had a fuller success at home. About France, the annual average of the export from England to France increased from \$165,755 for the period between 1847 and 1856, to \$423,833 in 1857-1866, and to \$1,701,228 in 1867-1876.

For the imports into England, Huskinson said in the House of Commons, that no larger a number of silk handkerchiefs or gowns were introduced than formerly, when the duty was 75 per cent. *ad valorem*. The wants of the consumers were the same. But the consumers of the years before 1826 supplied themselves by the help of smugglers. Later, with the duty of 30 per cent., they desired only the aid of the law.

In the United States, the vigilance of the Custom House is seldom at fault. We admit that smuggling is very rare. If the 50 and 60 per cent. are reduced in a reasonable measure, the import of French silk fabrics will increase in the United States, and the Treasury at Washington will receive more millions of dollars than it does now.

Mr. John Sherman, Secretary of Finance, will no doubt be glad; but what consequence, in your opinion, will a moderate reduction on French silk fabrics have upon your industry? I interrogate you with all the respect which the distinguished members of the Silk Association inspire me with.

Your answers will be actuated solely by the desire to enlighten, persuade and convince the governments of France and the United States with regard to this important subject.

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Mr. Chotteau was thanked for his courtesy in presenting the subject. The matter was referred by the Association to its Revenue Laws Committee.

## REPLY TO THE ADDRESS OF M. CHOTTEAU.

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TO THE BOARD OF GOVERNMENT OF THE }  
SILK ASSOCIATION OF AMERICA : }

Your Committee on Revenue Laws have carefully considered the arguments in favor of a treaty of commerce submitted by M. Léon Chotteau to your Board, and also the report of a meeting held in the same interest on Sunday, December 1st, 1878, in Paris, with a telegram from the Chamber of Commerce at Marseilles to the French Minister of Commerce and Agriculture.

The statistics given by M. Chotteau, of French imports and exports, etc., are very interesting, but in the opinion of your Committee they cannot be taken as an argument for or against a treaty of commerce such as M. Chotteau advocates.

The statistics of United States imports and exports, etc., show a much larger growth of prosperity, and if taken as an argument would prove the advantage of the United States tariff over a treaty of commerce.

Your Committee is strongly of the opinion that the customs duties of the United States can only be equitably regulated altogether in a general tariff and not partially by a treaty of commerce.

M. Chotteau in his address says :

You manufacture silk, and your annual production aggregates a value of more than 20 millions dollars. Tell us how should a Franco-American reciprocity treaty be concluded in order not to disturb your manufactures.

You will be surprised if I confess that some honest persons contest, at this late day, the usefulness of treaties of commerce.

Your Committee honestly contend that no case has been made out, showing that the United States need a treaty of commerce ; and that we cannot afford sentimentally to sacrifice our home industries.



M. Chotteau in his address carefully avoids the points of the treaty he advocates, and the said points are similarly avoided by the distinguished speakers at the meeting held at Paris on Sunday, Dec. 1st. The Marseilles Chamber of Commerce, however, discusses them in a telegram to the Minister of Commerce and Agriculture. Referring to silks, the Chamber cites the provision of the treaty :

Silks, all which now pay 60 per cent., will in future, only pay 50 per cent. for the first year, 40 per cent. for the second year, and 30 per cent. for the third year ; this duty of 30 per cent. will be maintained during the term of the treaty ;

and then goes on to say of the duty of 30 per cent.,

The Chamber of Commerce cannot admit these high duties—they will not be just. The manufacturers of Lyons seem disposed to accept them, but that is only because they desire that an important amelioration should be made in the present condition of affairs, without reference to the treaty itself, which would entitle us to much more.

The Silk Association of America cannot long hesitate as to the answer it shall make to such a proposition.

M. Chotteau cites the action of some of the silk manufacturers of England who favored the Cobden treaty which introduced French silks free into England. The bitter sequel to this action, which prostrated the silk trade of England and brought upon the industrial classes actual starvation while French looms were supplying the English market, is matter of history with which your Committee is well acquainted.

M. Chotteau tells us that the importation of English silk goods into France averaged \$423,833 from 1857 to 1866, and that it increased to \$1,701,228 from 1867 to 1876 ; but he omits to tell us that under the reciprocity (!) treaty such as he now proposes to us, the annual importation of French silk into England increased from \$3,750,000 to nearly \$50,000,000.

The following letter, which appeared in the *Macclesfield Courier* of May 17th, 1879, is so pertinent that your committee make it part of their report :

#### A WEAVER'S VIEW OF THE DEPRESSION OF TRADE.

MAY 17, 1879.

*To the Editor of the Macclesfield Courier :*

SIR,—Will you please to allow me to point out in your valuable columns a few of the causes why the silk trade is in such a depressed state at the present time. 1st. The great number of failures throughout the country, which have shaken commercial confidence to its very centre. 2d. The very long and severe winter. And 3d, (and



above all) the very injurious effects of the French Treaty. I remember at the time the Treaty came into operation there were about 25 or 30 silk manufacturers in Manchester and its vicinity, and they actually petitioned the Government to do away with the silk duties forthwith; which was done—15 per cent. being on at the time. There were upwards of 14,000 looms going at the time at Bedford Leigh and its neighborhood, but the Treaty swept them all away. I said at the time “they must be Free Trade mad.” Destitution followed wherever silk was manufactured. Look at poor Coventry and the miseries that the people suffered there! Then look at poor old Macclesfield, which was christened “the doomed town” by travellers who passed through it; and well they might call it so, for according to Mr. May’s statistics there were upwards of 2,000 houses empty for years—whole rows of garretted houses at 1s. 6d. rental, and nobody to take them. On the Franco-German war taking place, Lyons was put in a state of defence; the Army of Lyons moved up to Sedan a hundred thousand strong, under Marshal McMahon; and no doubt thousands of weavers and other silk hands were in that army. At that time there was an article in the *Economist* which said:—“We hope that the silk manufacturers and operatives in England will act wisely at the present time and for the future that is before them, by doing their uttermost to secure the new markets, new customers, and new connections that the war is sure to give them.” And so it did, for all the Macclesfield houses got tenanted, the rents went up double, and there was not one to be got. Some people called it a God-send; one gentleman said at a meeting, held at the Drill-hall, that Macclesfield—“the doomed town”—had once more reared its head; that we had had an unparalleled trade for the last three or four years, and that it was all due to Mr. Gladstone. I will leave that with your readers, for I know, and so do hundreds beside me, to the contrary. It is well known that while the French were fighting and carrying on their Communist operations amongst themselves, that we got, what I am afraid they are getting back again now, namely, the customers and connections they had before the war. I used to take notice of the returns of the Board of Trade, but when they had got into the tenth million I gave it up as hopeless; but I find that they have got into the tenth million again, and if so, there is very little left for us to make. What I stated years ago, I now repeat: If the French bring in over nine millions of silk goods, we have nothing but the remnant of the trade left; therefore we ought to be very careful that we don’t lose even that. See how careful the French are in every way. About two months ago, 20 Chambers of Commerce were represented and waited upon the French Minister of Commerce, for the purpose of inducing him to do his best to get the Government to renew all old treaties that were beneficial to French interests, and all new ones to be modified so as that their interests should be taken care of in every way. The minister promised he would do his best. Now, since Earl Granville has complimented Earl Beaconsfield, and told him that he has rendered a service to his country by putting his foot down firmly on any kind of protection, I think it behooves us to do our best to induce the gentlemen composing our Chamber of Commerce to do their best to carry out the views of Mr. Oliver, their worthy vice-president, by getting the duties on mixed goods, spun silks, etc., removed as soon as possible, and by doing away with the injustice that has been practised upon England since 1860. The duties on mixed goods range from 6 to 15 per cent., but the gentlemen of the Chamber of Commerce understand all about the question.

Yours respectfully,

JOHN PERRY.

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P. S.—I hope that all classes will come forward and put their feet down firmly to stamp out this unjust duty on mixed goods, spun silks, and velvets, that has been a burden upon us for the last 19 years. It is the only remedy that I can see.

Stripped of all ornament and sentiment, the proposed treaty is to do for the silk trade of the United States what the Cobden treaty did for the silk trade of England, viz.: to take the employment from American operatives and give it to French operatives. We now make \$20,000,000 of silk goods per annum and import about the same. The treaty is to be framed so that we shall make less and import more. This is a working-man's question, and affects every one who lives by labor.

M. Chotteau speaks of the improved condition of the workingmen of France, and gives the figures of savings bank deposits. Your Committee submit a comparative statement, showing the number of depositors and amount of deposits in savings banks in the New England States and New York State, and in all France:

	Year 1860.	Year 1875.		Average	Year 1876.		Average.
	Deposits.	Depositors	Deposits.		Depositors.	Deposits.	
Maine, - - -	\$1,539,257	96,799	\$29,612,221	\$305 91	101,326	\$32,083,314	\$316 00
New Hampshire	4,860,024	96,938	30,214,585	311 69	100,191	31,198,064	316 01
Vermont, - -	1,111,532	22,972	6,004,694	261 39	25,060	6,653,540	265 50
Massachusetts,	45,054,236	702,099	217,452,121	322 87	720,639	234,974,691	326 06
Rhode Island,	9,163,760	98,359	48,771,502	495 85	101,635	51,311,331	504 85
Connecticut, -	19,377,670	206,374	73,783,802	357 52	208,030	76,489,310	367 69
New York, -	67,440,397	872,498	303,935,649	348 35	859,738	319,260,202	371 00
Total, - - -	\$148,546,876	2,096,039	\$709,774,574	\$338 66	2,116,619	\$751,970,452	\$355 26
All France, -	\$67,292,336				2,365,557	\$132,082,793	\$55 80

Attention is invited to these figures, showing that the deposits of the State of New York and the State of Massachusetts far exceed the deposits of the whole of France.

Protection to American industry has not created a monopoly for American manufacturers.

In the year 1876, out of forty-eight New England manufacturing companies,

16 paid no dividends,

9 paid from 2 to 5 per cent.,

18 paid from 6 to 10 per cent.,

and only 5 paid over 10 per cent.

The benefits of protection accrue mainly to the operatives. They are better paid for their labor and are consequently better fed and better clothed than the operatives of any other country. Their families enjoy comforts unknown elsewhere; and when so disposed, they save liberally of their earnings.

In the year 1876 there were in the United States 10,853,390 children from 6 to 16 years of age; of these 8,825,185 were enrolled in the public schools, and 84 millions of dollars were expended in their education.

The manifest purpose of the proposed treaty is to enable France to sell more of her wines and silks to the United States; it by no means follows that France would buy more from the United States under the treaty than heretofore. She sells us luxuries; she buys from us necessities. Her necessities will not be increased because she finds a larger outlet here for the products of her wine-presses and her looms. It is more than probable that an increased balance against us would have to be paid in hard cash. This brief statement shows the absence of a basis for real reciprocity between the two countries. In 1877 we exported to France \$46,390,213. This is made up chiefly of raw material, \$25,000,000 being cotton, which France must have for her own benefit. In the same year we imported from France \$47,556,292. This is made up chiefly of manufactured goods.

France has manufactured silk for 350 years. She has all the appliances, means, technical education, and we might almost say, instinct, for it. She has earned her pre-eminence. She has always regarded the industry as of great national importance, and has encouraged and protected it most jealously. Hence her anxiety at the progress of the silk industry in America.

To-day, the United States stand second among the nations for textile manufactures, and if wise counsels prevail she will soon stand first, and the silk industry will do its share towards the attainment of that rank.

Your committee consider that the proposed treaty would destroy the silk trade of America, and therefore recommend that it be opposed by the Silk Association of America, vigorously, at every point.

All which is respectfully submitted.

B. RICHARDSON, *Chairman*.  
ROBERT HAMIL,  
C. LAMBERT,  
F. O. HORSTMANN,  
WERNER ITSCHNER,  
A. B. STRANGE,  
SETH LOW,  
WILLIAM RYLE.

NEW YORK, June 21st, 1879.

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The foregoing Report has been submitted to many members of the Paterson Board of Trade, who are identified with silk interests, and a meeting will be held after the summer vacations, at which the said Report will undoubtedly receive the emphatic indorsement of the Board.

WILLIAM RYLE,  
*President of the Paterson Board of Trade.*

PATERSON, July 2, 1879.

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The foregoing Report was indorsed by Resolution, passed at a meeting of the Silk Industry Association of Paterson, N. J.

JOHN P. MACKAY, *Secretary*.  
JAMES BOOTH,  
JOHN GRIMSHAW,  
GEORGE SINGLETON,  
J. WEIDMANN,  
DWIGHT ASHLEY,  
GEORGE GRIMSHAW, Jr.,  
GEORGE FROST,  
JOHN C. RYLE.

PATERSON, July 2, 1879.



AMERICAN  
SILK GOODS  
DIRECTORY.

INCLUDING SILK MANUFACTURERS, DEALERS IN  
SILK MANUFACTURES, AND RAW SILK  
IMPORTERS AND BROKERS.

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COMPILED BY WM. C. WYCKOFF.

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1879.

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No directory of the American Silk Interest has been compiled since 1876, with any pretensions to accuracy. The changes in the interval have been very numerous. The present directory has fewer errors than its predecessors, but is still, doubtless, incomplete. Its compiler will be greatly obliged, if notice is sent to him of errors or omissions, and of changes in firms, companies or agencies; as such information may be utilized in a second edition.

44 HOWARD STREET,  
New York.

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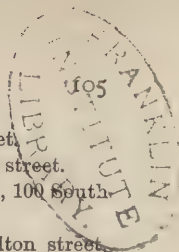
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- \*Hugo Funke. Ribbons. Mills, College Point ; salesroom, 19 Greene street.  
 German Braid Company. Silk Braids. Brooklyn, E. D.  
 Henry Gimpel & Co. Dress Trimmings. Factory and salesroom, 403 Broadway.  
 Frederick Gminder & Co. Dress Trimmings. Factory and salesroom, 56 Walker street.  
 Louis Greenbaum. Cords and Tassels. Factory, 447-453 West 26th street ; salesroom, 248 Canal street.  
 Helmke & Co. Dress Trimmings. Factory and salesroom, 731 Broadway.  
 Hobley Bros. William H. H. K. C. Higgins, Agent. Belt Ribbons, Dress Trimmings, &c. Factory, Williamsburgh. Salesroom, 107 Grand street.  
 P. Hagan. Dress Trimmings. Factory and salesroom, 180 Bowery.  
 M. Haiges. Dress Trimmings. Rochester.  
 Henry Hartwig & Co. Upholstery Trimmings. Factory and salesroom, 340 Bowery.  
 Frederick Haubner & Co. Upholstery Trimmings. Factory and salesroom, 606 Eighth Avenue.  
 \*Thomas F. Hayes. Ladies' Dress and Cloak Trimmings. Factory and salesroom, 5 to 9 Union Square.  
 James Heidenreich. Silk Dyer. 423-425 West 35th, and 422-424 36th street.  
 Jacob Heineman. Ladies' Dress Trimmings, &c. 28 Howard street.  
 Isaac Hilton. Dress Trimmings. Factory and salesroom, 128 River street, Troy.  
 F. Hoffman. Furrier Trimmings. Factory and salesroom, 356 Bowery.  
 George Howard. Fancy Goods, Twills, &c. Factory and salesroom, 348 West 24th street.  
 C. W. Jackson & Co. Dress Trimmings. Factory and salesroom, 114 East 14th street.  
 \*A. G. Jennings. Guipure, Thread, Blonde, Brussels and Bretonne Laces, Lace Mitts, Scarfs, Neck Ties and Hair Nets. "Jennings' Lace Works," Park Avenue and Hall street, Brooklyn ; salesroom, 428 Broome street.  
 Korman & Stepath. Dress Trimmings. Factory and salesroom, 41 Walker street.  
 Alexander King & Co. Dealers in Organzine, Tram, Fringes, Twist and Sewing Silk. Salesroom, 54 Leonard street.  
 Rudolph Krumsick. Fur Trimmings. Factory and salesroom, 7 Mercer street.  
 M. Leiter. Ribbons and Upholstery Gimps. Factory and salesroom, 59 to 65 Goerck street.  
 F. Leschhorn & Co. Dress Trimmings. Factory and salesroom, 21 Howard street.  
 Lips, Nathan & Küppers. Silk Refinishers. Factory and office, 28 Howard street.  
 Joseph Loth & Co. Silk Ribbons. Factory, New York ; salesroom, 458 Broome street.  
 J. Lovatts' Sons. Sewing Silk and Twist. Factory and salesroom, Tarrytown.  
 William Macfarlane. Gum Silk, Sewing Silk, and Twist. Mills and salesroom, Yonkers, "Nepperhan Silk Works."  
 J. B. Mackie. Sewing Silk and Twist. 78 Wooster street.  
 J. Maidhof & Co. Dress Trimmings. Factory and salesroom, 455 and 457 Broadway.



# THE SILK GOODS OF AMERICA.

- E. Mantone & Co. Dress and Cloak Trimmings. 426 Broome street.  
 Charles N. Martin. Sewing Silk and Twist. Salesroom, 350 Canal street.  
 A. Maynard & Co. Upholstery Trimmings. Factory and salesroom, 100 South Sixth street, Brooklyn, E. D.  
 S. McLure. Dress Trimmings. Factory and salesroom, 251 Fulton street, Brooklyn.  
 L. Meyers & Co. Dress Trimmings. Factory and salesroom, 424 Broome street.  
 A. Moll. Braids. Factory, 233 and 235 5th street, Brooklyn, E. D.; salesroom, 109 Grand street.  
 Ernst Muller. Dress Trimmings. Factory and salesroom, 820 Broadway.  
 \*Russell Murray. Organzine and Tram. 63 Greene street.  
 J. Nawl. Cords and Braids. Brooklyn.  
 Jacob New. Ribbons. Factory, 422 to 423 West 33th street; salesroom, 61 Greene street.  
 William Neustaedter. Dealer in Tram, Organzine and Spun Silk. Salesroom, 46 Walker street.  
 \*New York Silk Manufacturing Co. W. J. Harris, Manager. Gros Grain Ribbons, Beltings and Hat Bandings. Factory and salesroom, 527 West 22d street. L. Bloom, sole agent.  
 Nordheim & Harris. Dress and Upholstery Trimmings. Factory and salesroom, 7 Washington Place.  
 Oneida Community. Thomas Handy, Agent. Sewing Silk and Twist. Mills, Oneida; salesroom, 54 Lispenard street.  
 Maurice O'Brien. Upholstery Trimmings and Fringes. Factory and salesroom, 94 Bowery.  
 Morris Oppor. Dress Trimmings. Factory and salesroom, 684 Broadway.  
 A. L. Phillips & Co. Hatters' and Furriers' Trimmings. Factory and salesroom, 54 Mercer street.  
 S. Piek. Dress and Cloak Trimmings. Factory and salesroom, 595 Broadway.  
 Wm. Reitmeyer. Fringes and Trimmings. Factory, 324 to 332 Delancey street, and 31 to 41 Tompkins street; salesroom, 29 Howard street.  
 Roemer & Co. Upholstery Trimmings and Fringes. Factory and salesroom, 729 Broadway.  
 \*William Ryle. Dealer in Thrown Silks. (Also, Importer of Raw Silks.) 54 Howard street.  
 \*Sauquoit Silk Manufacturing Co. L. R. Stelle, President. Richard Rossmüssler, Treasurer. Tram, Organzine and Fringe Silks. Factories, Sauquoit, near Utica, N. Y., Scranton, Penn., and Philadelphia. Salesrooms, cor. Columbia ave and Randolph street, Philadelphia, and 54 Howard street, New York.  
 C. A. Schmidt. Upholstery Trimmings and Fringes. Factory and salesroom 85 Chambers and 67 Reade streets.  
 \*J. Silbermann & Co. Bonnet and Belt Ribbons, Dress Trimmings, &c. Factory, 452 to 456 10th Avenue; salesroom, 21 Mercer street.  
 \*George B. Skinner & Co. Tram, Organzine, and Fringe Silk, Sewings and Twist. Mills, Yonkers. Salesroom, 27 Mercer street.  
 \*John N. Stearns & Co. Black and Colored Gros Grain Silks, Brocaded Dress Silks, Plain and Fancy Handkerchiefs. Factories, 213 to 221 East 42d street, and 214 to 224 East 43d street. Salesroom, 458 Broome street.



- A. T. Stewart & Co. Colored and Black Gros Grain Silks; Satin de Chine. Mills, Carteret. Salesrooms, 784 Broadway.
- Sutro Bros. Silk, Mohair, Cotton and Gilt Braids; Tubular Braids and Braided Cords; Sole Manufacturers of Braids on Patent Cards. Factory and salesroom, 35 and 37 Wooster street.
- Robert Thorp & Sons. Galloons, Ribbons, Hatters' and Clothiers' Trimmings, Hat, Shoe and Prussian Bindings. 52 Greene street.
- J. H. Voght. Trimmings, Cords, Braids, &c. 425 Broadway.
- \*Richard Walter. Silks and Ribbons. Mills, 456 and 458 West 46th street; salesroom, 222 and 224 Church street.
- R. Weinberg. Upholstery Trimmings and Fringes. Factory and salesroom, 814 Broadway.
- C. W. Weinberg. Dress Trimmings, &c. Salesroom, 23 Howard street.
- William Weiss. Dress Trimmings, &c. Factory and salesroom, 424 Broome street.
- P. H. & W. Williams. Fringes, Tassels, Gimps, &c. Factory and salesroom, 873 Broadway.

### NEW JERSEY.

- R. & H. Adams. Ribbons and Fancy Silks. Factory, Paterson; salesroom, 14 Greene Street, New York.
- American Braid Co. Silk Watchchains, &c. Paterson.
- Ashley & Bailey. Tie Silks, Dress Goods, Handkerchiefs, &c. Paterson.
- C. B. Auer. Satins and Brocades. Paterson.
- Auerbach & Rosenheim. Sewing Silk and Twist. Mills, Paterson; salesroom, 34 Howard street, New York.
- Barnes & Peel. Silk and Mohair Braids, Organzine, Tram, Trimmings, &c. Beaver Mill, Paterson.
- P. & I. Bannagan. Tram, Organzine, and Fringe Silks. Mills and salesroom, Lakeview.
- \*J. H. Booth & Co. Tram, Organzine, and Fringe Silks. Mills, corner Market and Spruce streets, Paterson; salesroom, 54 Howard street.
- George L. Broomhall. Tie Silks, Dress Goods, Handkerchiefs, &c. Paterson.
- \*Caula & Chaffanjon. Dress Silks. Victory Silk Mills, Columbia and Lincoln streets, Jersey City Heights; salesrooms, Oberteuffer, Abegg & Co., agents, 94 Grand street, New York.
- \*C. Chaffanjon. Broad Silks, Serges, Satin de Chine, &c. Mills, Jersey City Heights, "Favorite" Silk Manufactory.
- L. Chapperon. Dress Goods. 106 Washington street, Hoboken.
- John Comby. Black and Colored Gros Grains. Mills, West Hoboken. Salesroom, 222 Church street. C. Passavant & Co., agents.
- \*John D. Cutter & Co. Inslee A. Hopper, late President of Singer Manufacturing Co., special partner. Sewing Silk, Button Hole Twist, Silk Braids, Serge, Satin de Chine. Gros Grains, Handkerchiefs, Scarfs, &c. Mills, Newark; salesrooms, 329 and 331 Broadway, cor. Worth street, New York; 26 Summer street, Boston, and 40 Arch street Philadelphia.
- \*Dexter, Lambert & Co. Twill Silks, Tie Silks, Ribbons, and Ladies' Dress Silks. Mills, Paterson. Salesroom, 33 and 35 Greene street, New York.
- Frederick S. Dale. Silk and Mohair Braids and Bindings. "Dale Mill," Paterson.
- \*John Dunlop. Sewing Silk and Twist. Mills, Paterson, "Union Silk Works;" salesroom, 25 Mercer street, New York.

- Joseph Fletcher. Thrown Silk. Factory and salesroom, Paterson.
- \*Louis Franke. Fringe Silk, Twist, Tram, and Organzine, especially prepared for Trimming Manufacturers. Salesroom, 444 Broome street.
- H. H. Freeman & Co. Piece Silks. Mills, Paterson.
- George Frost. Throwster. Paterson.
- Gianetti & Co. Throwsters. Factory and salesroom, Haledon.
- \*Givernaud Bros. Gum Silks, Dress and Fancy Silks. Factory and salesroom, Hoboken; office, 46 Howard street, New York.
- F. Grassan. Upholstery Trimmings. Factory and salesroom, Washington street, Hoboken.
- Claude Greppo. Silk Dyer. Dale Avenue and Slater street, Paterson. Office, 27 Mercer street, New York.
- \*Grimshaw Bros. Handkerchiefs, Scarfs, Dress Goods, &c. Mills, Dale avenue and Slater street, Paterson; salesroom, 71 Franklin street, New York.
- Grossenbacher & Co. Broad Silks, &c. Mills, Paterson. Agents in New York, 85 Grand street.
- \*Hamil & Booth. Tram, Organzine, and Fringe Silks, Ribbons, Fancy Silks, &c. Mills, Paterson, "Passaic Silk Works" and "Hamil" Mill; salesroom, 96 Grand street, New York.
- Hayes & Crawford. Dress Goods, Tie Silks, Handkerchiefs, &c. Paterson.
- Wm. Hembery. Silk Dyer. Paterson.
- \*Hinze & Co. Silk Refinishing Works. Hoboken. Office, 47 Mercer street, New York.
- M. J. Hawks & Co. Prussian Bindings, Galloons, &c. Hamilton Mill, Paterson. M. H. Chapin, agent, 68 Greene street, New York.
- W. D. Holmes. Dress Goods, Handkerchiefs, &c. 9 Fair street, Paterson.
- Homer & Soleliac. Silks. Factory, Paterson; salesroom, Luckemeyer, Kunoth & Co., agents, 472 Broome street, New York.
- Hopper & Scott. Thrown Silk. Paterson.
- Jourdeuil & Pinkney. Silks, Serges and Satin de Chine. Mills, West Hoboken. Salesroom, 532 Broadway, New York.
- Kingman & Freeman. Piece Goods, Handkerchiefs, &c. Mills, Paterson; salesroom, 57 Mercer street, New York.
- John Lockett. Tie Silks, Dress Goods, Handkerchiefs, &c. Paterson.
- S. Lucas. Dress and Millinery Goods, Tie Silks, Handkerchiefs, &c. Paterson.
- \*J. P. Mackay. Dress, Plain, and Fancy Silks, Scarfs, &c. Mills and salesroom, Paterson.
- \*S. M. Meyenberg. Ribbons, Veils, Ties, &c. Factory, Paterson. Salesroom, 40 Lispenard street, New York.
- Miller & Brown. Dress Goods, Handkerchiefs, &c. 93 River street, Paterson.
- George Morlot. Silk Dyer. 32d street and 10th ave., Paterson. Office, 38 Howard street, New York.
- Neuberger Braid Co. Silk and Mohair Braids and Trimmings. Mills, Paterson; salesrooms, 39 and 41 Walker street, New York.
- Nightingale Bros. Tie Silks, Dress Goods, Handkerchiefs, &c. Paterson.
- Paterson Dyeing Association. Silk Dyers. Franklin Mill, Paterson.
- Paterson Dyeing and Finishing Co. P. Dorgeval, Manager. Works, Paterson; office, 27 Mercer street, New York.
- \*Pelgram & Meyer. Ribbons, Piece Goods, &c. Mills, Paterson; salesroom, 57 and 59 Greene street, New York.



- \*Pioneer Silk Co. Tram, Organzine, Dress and Fancy Silks, &c. The Murray Mills, Paterson.
- A. Pocachard. Dress Silks. 117 Market street, Paterson.
- J. Rousset. Silk Dress Goods. Paterson.
- \*John C. Ryle & Co. Thrown Silk. Paterson.
- J. R. Schoals & Co. Handkerchiefs, &c. Mills, Paterson. Salesroom, 58 Lispenard street, New York.
- See & Sheehan. Silk Dyers. Dye Works, Paterson; office, 96 Grand street, New York.
- \*John Jackson Scott. Sewing Silk and Twist, and Silk Dyer. Factory and salesroom, Paterson.
- Thomas Sherratt. Dress and Novelty Piece Goods, Tie Silks, Scarfs, &c. 60 Railroad ave., Paterson.
- George Singleton. Tram and Organzine. Paterson.
- A. Siedendorf. Upholstery Trimmings. Factory and salesroom, Hoboken.
- \*Herman Simon. Dress and Fancy Silks. Factory and salesroom, Town of Union; salesrooms, 62 and 64 Worth street, New York.
- R. M. Smith & Nightingale. Tie Silks, Dress Goods, Handkerchiefs, &c. Paterson.
- Wright Smith. Dress Goods, Tie Silks, Scarfs, Handkerchiefs, &c. Mills, Paterson; salesrooms, 57 Leonard street, New York.
- Southworth Brothers. Dress Goods and Handkerchiefs. Paterson.
- C. Spangenberg. Upholstery Trimmings. Factory and salesroom, Gardner street, Hoboken.
- \*William Strange & Co. Ribbons, Handkerchiefs, Millinery Silks, &c. Trams, Organzines, &c. Mills, Paterson; salesroom, Strange & Bro., 42 Greene street, New York. Paris house, E. B. Strange & Bro.
- William Ther & Sons. Elastic Webbing. Factory and salesroom, New Brunswick.
- \*B. B. Tilt & Son. Silk Piece Goods, Handkerchiefs, Ribbons, &c. Mills, Paterson; salesroom, 90 and 94 Grand street, New York.
- \*J. Weidmann. Silk Dyer. Dye Works, corner Paterson and Ellison streets, Paterson. Black Dyeing a specialty.
- A. D. Winfield & Co. Silk and Mohair Braids. Union Works, Paterson.
- Wortendyke Manufacturing Co. Tram, Organzine, and Fringe Silks, Mills, Wortendyke.

### CONNECTICUT.

- Ætna Silk Co. Sewing Silk and Twist. Norfolk.
- O. Atwood. Sewing Silk and Twist. Mills and salesroom, New London.
- \*Belding Bros. & Co. Sewing Silk and Twist. Mills, Rockville; also at Northampton, Mass., and Montreal, Canada. Salesrooms, 456 Broadway, New York; 105 Summer street, Boston; 56 West 4th street, Cincinnati; 130 Franklin street, Chicago; 601 North 4th street, St. Louis; 6th, cor. of Arch street, Philadelphia. L. C. Hall, Jr., & Co., Agents for Philadelphia house: 521 Market street, San Francisco, Carlson & Currier, Agents; Belding, Paul & Co, Montreal, Canada.
- \*Bottum, Phipps & Co. Sewing Silk and Twist. Mills, Willimantic: salesrooms, 56 Worth street, New York, and 105 Summer street, Boston.
- I. H. Booth. Coach Laces. New Haven
- \*L. D. Brown & Son. Sewing Silk and Twist. Mills, Middletown; salesrooms, 119 Summer street, Boston, and 439 Broadway, New York.



- \*Cheney Bros. Gros Grains, Brocades, Satins, Handkerchiefs, Ribbons, Trams, Organzines, and Fine Patent Spun Silks. Mills, Hartford and South Manchester; salesrooms, 477 Broome street, New York.
- \*O. S. Chaffee & Son. Sewing Silk and Twist. Mills and salesrooms, Mansfield Centre and Willimantic.
- R. S. Clark. Sewing Silk and Twist. Mount Carmel.
- \*A. B. Fenner. Sewing Silk and Twist. Central Village.
- Charles R. Garratt. Belt Ribbons, Bonnet Ribbons. Factory, Golden Hill, Bridgeport, Conn.; salesroom, Brainerd, Armstrong & Co., 463 Broadway.
- \*Holland Manufacturing Co. Ira Dimock, Manager. Sewing Silk and Twist. Mills, Willimantic; salesroom, 435 Broadway, New York. Agent, H. Eldridge.
- Hammond, Knowlton & Co. Sewing Silk and Twist. Mills, Putnam. Salesroom, 79 Chambers street, New York.
- P. G. & J. S. Hanks. Sewing Silk and Twist. Mills and salesroom, Gurleyville.
- \*J. H. Hayden & Co. Sewing Silk and Twist. Mills, Windsor Locks; salesroom, Kingman & Freeman, agents, 57 Mercer street, New York.
- M. Heminway & Sons' Silk Co. Sewing Silk and Twist. Mills, Watertown; salesrooms, 78 Reade street and 99 Church street, New York.
- \*Leonard Silk Co. Sewing Silk and Twist. Prest., J. H. Simonds, Warehouse Point, Conn. Mills, at Rockville. Salesroom, 140 Church street, New York; G. S. Palmer, agent.
- Macfarlane Bros. Sewing Silk, Machine and Button-hole Twist. Mills, Mansfield Centre; salesroom, 43 Walker street, New York.
- B. K. Mills & Co. Coach Lace, Fringes, Tassels, &c. Factory and salesroom, 56 & 58 Cannon street, Bridgeport.
- J. S. Morgan. Sewing Silk and Twist. Mills, South Coventry; salesroom, 79 Chambers street, New York.
- Norfolk Silk Co. Sewing Silk and Twist. Mills and salesroom, Norfolk. Salesroom, Baldwin, Lowell & Co., 107 8th avenue, New York.
- Charles H. Pardee. Coach Laces. New Haven.
- E. B. Smith. Sewing Silk and Twist. Mills, Gurleyville; salesroom, (Belding Bros. & Co, Agents) 456 Broadway, New York.
- P. W. Turner & Son. Tram, Organzine, Sewing Silk, and Twist. Mills, Turnerville; salesroom, 27 Greene street, New York.
- Wallingford Community. Sewing Silk and Twist. Wallingford. G. D. Allen, Manager.
- A. Washburn. Dealer in Sewing Silk and Twist. South Coventry.
- Willimantic Silk Co. Hat Braids. Willimantic.
- Winsted Silk Co. Sewing Silk and Twist. Winsted. E. Potter, Manager.

### MASSACHUSETTS.

- Barr, Rider & Co. Dealers in Sewing Silks. Salesroom, 21 Summer street, Boston.
- Boston Elastic Fabric Co. Suspender Webs, Garter Webs, Frills, Cords, and Braids. Mills, Chelsea; salesrooms, 175 Devonshire street, Boston; 102 Chambers street, New York.

- Burr, Brown & Co. Upholstery Trimmings. Factory and salesroom, 85 Devonshire and 289 Washington streets, Boston.
- Henry Day. Ribbons. Factory and salesroom, 19 Franklin street, Boston.
- Downs & Adams. Sewing Silk and Twist. Factory, Boston Highlands; office, 5 Chauncy street.
- Fiedler, Moeldner & Co. Dress and Cloak Trimmings. Factory, 473 to 477 Tremont street; salesroom, 36 Winter street, Boston.
- Isaac Farwell, Jr., & Co. Sewing Silk and Twist. Mills, Newton; salesroom, 32 Avon street, Boston.
- O. Fiedler & Co. Ladies' Dress Trimmings. Factory and salesroom, 36 Winter street, Boston.
- A. W. French & Co. Gum Silks. Salesroom, 28 Winter street, Boston.
- Glendale Manufacturing Co. Rubber Elastics, Bands, &c. Mills, Easthampton; salesroom, 121 Duane street, New York.
- Glenwood Mills. Sewing Silk and Twist. Mills, East Hampton. Salesroom, 57 Mercer street, New York.
- \*Lathrop Bros. Sewing Silk, Machine Twist, Tailor's Twist, &c. Mills and salesroom, Northampton.
- G. H. Mansfield & Co. Fish Lines. Factory and Salesroom, Canton.
- V. J. Messinger & Co. Dealers in Sewing Silk and Twist. 23 Dock Square, Boston.
- \*Nonotuck Silk Co. Ira Dimock, President; A. T. Lilly, Treasurer. Sewing Silk and Twist. Mills, Florence and Leeds; salesrooms, 19 Mercer street, New York; 18 Summer street, Boston; 459 Fifth Avenue, Chicago; 417 and 419 North Fourth street, St. Louis; 88 West Third street, Cincinnati.
- \*Seavey, Foster & Bowman. Sewing Silk and Twist. Mills, Canton; salesrooms, 7 Mercer street, New York; 40 Summer street, Boston; 6 Washington street, Chicago.
- \*Smith & Rice. Sewings and Twist. Mills and salesroom, Pittsfield.
- \*Springfield Silk Co. Sewing Silk and Twist. Mills, Springfield. Salesrooms, C. F. Lockhardt, Agent, 73 Leonard street, New York; 81 High street, Boston; 17 South 4th street, Philadelphia.
- Streeter & Mayhew. Machine Twist. Mills, Shelburne Falls. Salesroom, Kingman & Turner, agents, 57 Mercer street, New York.
- \*William Skinner. Orgazine, Sewing Silk, and Twist. "Unquomunk Silk Mills," Holyoke, Mass.; salesroom, 43 Mercer street, New York.
- L. D. Suydam. Dealer in Sewing Silks. Salesroom, 8 Hamilton Place, Boston.
- \*Luther J. Warner. Sewing Silk and Twist. Mills and salesroom, Northampton.
- H. L. Whitney. Dealer in Sewing Silk. Salesroom, Boston.
- Thomas Wilkins & Co. Dealers in Sewing Silks. Salesroom, Greene street, near Bowdoin, Boston.

## PENNSYLVANIA.

- \*Aub, Hackenburg & Co. Sewing Silk and Twist. Factory, 244 to 248 North Front street; salesrooms, 20 North 3d street, Philadelphia; 216 Church street, New York; 19 Light street, Baltimore; 69 West 3d street, Cincinnati; 152 Fifth Avenue, Chicago.

- Croxton & Wood. Wayne Station, Germantown.
- Cunningham & Hill. Upholstery Trimmings. Factory and salesroom, 204 Church street, Philadelphia.
- Davenport Bros. Upholstery Trimmings. Factory and salesroom, corner of Mosher and York streets, Philadelphia.
- H. L. Freyer. Ladies' Dress Trimmings. Factory, 25 South 8th street; salesroom, 727 Jayne street, Philadelphia.
- E. H. Godshalk. Dress Trimmings, Fringes, &c. Factory and salesroom, cor 12th and Buttonwood streets, Philadelphia; 71 Franklin street, New York.
- \*J. C. Graham. Ladies' Dress and Cloak Trimmings. Factory and salesroom, 525 and 527 Cherry street, Philadelphia.
- Hensel, Colladay & Co. Ladies' Dress Trimmings. Factory and salesroom 22 to 24 North 4th street, Philadelphia.
- S. R. & F. Hansell. Upholstery Trimmings. Factory and salesroom, 419 Race street, Philadelphia.
- L. M. Harned & Co. Upholstery Trimmings. Factory and salesroom, Bristol.
- J. T. Harrop. Sewing Silk and Twist. Philadelphia.
- B. Hooley & Son. Tram, Organzine, Fringe Silks, Sewing Silk and Twist. "Keystone Silk Mills;" salesroom, 226 Market street, Philadelphia.
- \*William H. Horstmann & Sons. Gum Silks, Ladies' Dress and Cloak Trimmings of every description, Ribbons, Fringes, Floss, Upholstery Trimmings, Coach and Carriage Laces and Trimmings, Jacquard Weaving, Military Equipments, Regalia, Theatrical Goods, Silk Flags, Bunting, Sashes, Scarfs, &c. Factory and salesroom, corner of 5th and Cherry streets, Philadelphia; salesroom, 410 Broadway, New York.
- \*F. S. Hovey. Sewing Silk and Twist. Salesroom, 248 Chestnut street, Philadelphia.
- \*W. Itschner & Co. Ribbons. Mills, Tioga Station, Germantown; salesrooms, 233 Chestnut street, Philadelphia; 70 Mercer street, New York.
- T. Jones & Son. Silk Dyers. 110 and 112 Putnam street, Philadelphia.
- J. & A. Kemper. Ladies' Dress Trimmings. Factory and salesroom, 33 South 4th street, Philadelphia.
- Rudolph Klauder & Co. Dyer. Cor. Howard and Oxford streets, Philadelphia.
- M. W. Lipper & Co. Dress Trimmings. "Keystone Braid Mills;" salesrooms, 144 and 146 North 5th street, Philadelphia; 338 Broadway, New York; and 49 Summer street, Boston.
- Charles Morel. Silk Dyer. 2219 Richmond street, Philadelphia.
- G. A. Perkes & Co. Upholstery Trimmings. Factory and salesroom, 34 South 2d street, Philadelphia.
- Joseph Roehm. Dealer in Sewing Silk and Twist. Office, 47 South Fourth street, Philadelphia.
- \*Sauquoit Silk Mfg. Co. (Factory at Philadelphia.) See New York State.

### MARYLAND.

- M. Hecht & Co. Neckwear, Dress Trimmings. Factory and salesroom, 43 German street, Baltimore.
- G. Tallerman & Co. Dress and Upholstery Trimmings. 231 Frederick avenue, Baltimore.
- William B. Towles & Bro. Ribbons, Scarfs, &c. 145 Baltimore street.



**MAINE.**

Haskell Silk Co. Sewing Silk and Twist. Mills, Sacarrappa; salesroom, Kingman & Freeman, agents, 57 Mercer street, New York.

**NEW HAMPSHIRE.**

Charles W. Kelsea & Co. Sewing Silk and Twist. Mills and salesroom, Antrim.

**VERMONT.**

J. F. Stearns. Sewing Silk and Twist. Mills and salesroom, Brattleboro.

**OHIO.**

F. Brogleman. Upholstery Trimmings. 204 Vine street, Cincinnati.  
 John Franz. Fringes, Tassels, Cords and Gimps. 25 Oregon street, Cleveland.  
 Hoffmeister & Deneal. Fringes, Dress Trimmings, &c. Factory and salesroom, 104 5th street, Cincinnati.  
 F. Hoffmeister. Fringes, &c. 152 West 4th street, Cincinnati.

**ILLINOIS.**

Ederer & Peters. Upholstery Trimmings. 61 Washington street, Chicago.  
 A. B. Fiedler. Upholstery Trimmings. 48 East Madison street, Chicago.  
 E. A. Jacobs. Upholstery, Dress and Military Trimmings. 106 to 110 South State street, Chicago.

**MISSOURI.**

Schact & Bro. Upholstery Trimmings. Market Street, St. Louis.

**KANSAS.**

\*E. V. de Boissière. Ribbons and Ladies' Dress Trimmings. Mills, Silkville, Williamsburgh, P. O.

**CALIFORNIA.**

The California Silk Manufacturing Co. Rogers, Meyer & Co. Tram, Organzine, Sewing Silk and Twist. Mills, South San Francisco. Agents, William Macdonald & Co. Salesroom, 13 Post street.  
 Higinbotham & Co. San Jose.  
 Joseph Neumann. Silk culturist and manufacturer of Silk Flags, &c. 1142 Folsom street, San Francisco.  
 Pacific Factory. William Englander. Silk Fringes and Gimps. Factory and salesroom, 751 Market street, San Francisco.  
 Union Pacific Silk Manufacturing Co. George C. Bode, President. Ribbons. Mills, San Francisco.

**CANADA.**

\*Belding, Paul & Co. Sewing Silk and Twist. Mills, Montreal. See Belding Bros. & Co., Connecticut.



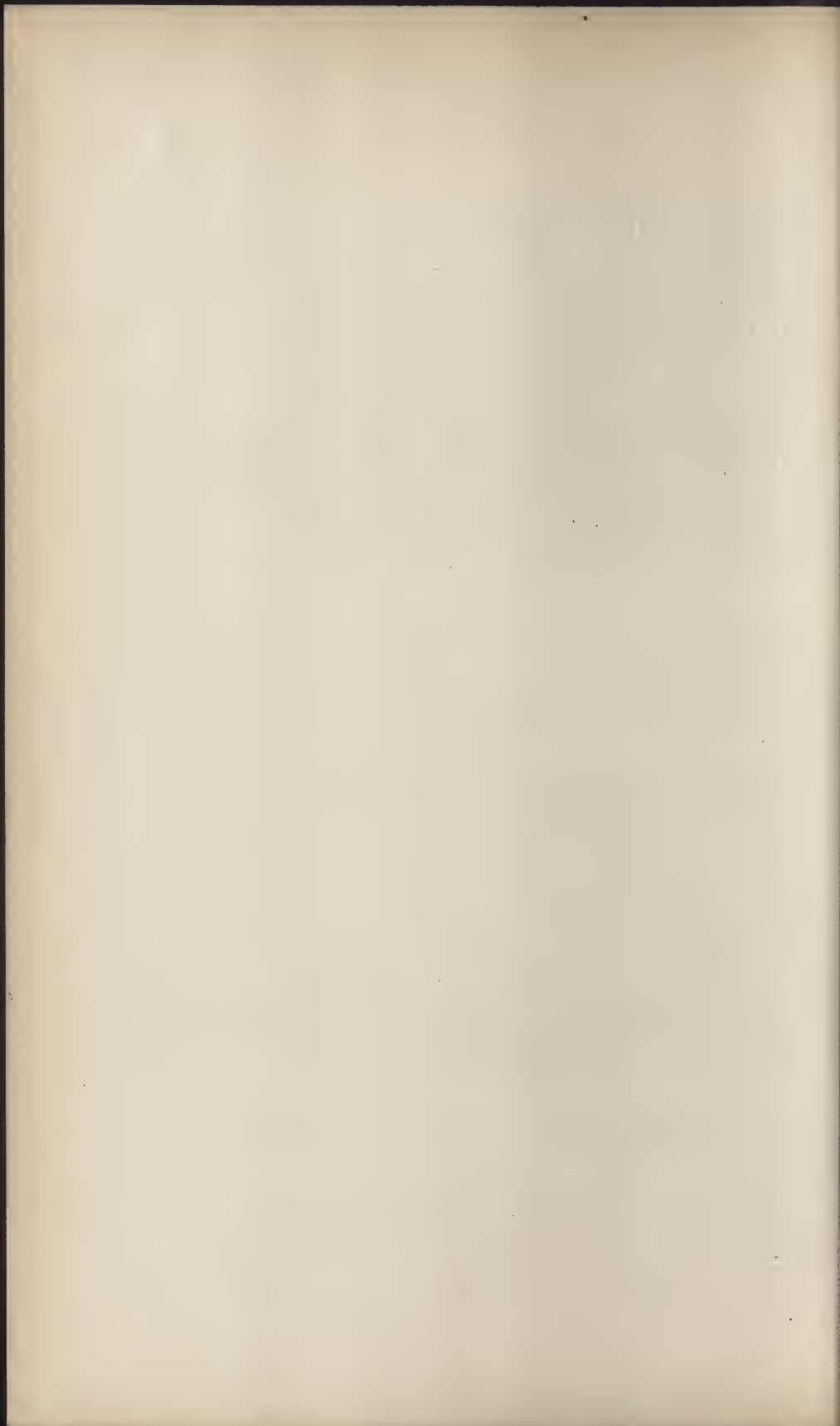
## IMPORTERS OF RAW SILK.

## NEW YORK CITY.

*C. A. Auffmordt & Co.....	33 and 35 Greene street
*John C. Caswell & Co.....	87 Front street
Featron, Low & Co. Shanghai.....	Agency, 112 Front street
*H. Fogg & Co.....	32 Burling Slip
Fraser, Farley & Co. Yokohama. Ira Bursley, Agent .....	64 South street
Gossler & Co.....	134 Pearl street
*Hadden & Co.....	33 Chambers street
Hewlett & Torrance.....	69 Wall street
Leisler & Sommerhoff.....	85 Grand street
*W. Itschner & Co.....	70 Mercer street
Lewis Bros.....	94-96 Thomas street
*A. A. Low & Bros.....	31 Burling Slip
*E. Ludwig, Agent.....	19 Mercer street
*William F. Milton & Co. ....	159 Maiden Lane
Morewood & Co.....	71 South street
E. Oelbermann & Co.....	57-63 Greene street
Oelrichs & Co.....	2 Bowling Green
J. C. Phillips & Co.....	130 Water street
Russell & Co. Hong Kong. S. W. Pomeroy, Agent.....	59 Wall street
*William Ryle.....	54 Howard street
*William H. Smith & Son.....	77 William street
Wm. Stens & Co.....	477 Broome street
*Vogel & Co.; Benjamin D. Smith.....	113 Water street
*Swire Bros.; A. H. Gibbes, Agent.....	93 Wall street
*John T. Walker.....	81 Pine street
Philip Wamsley & Co. ....	353 Canal street
*Wetmore, Cryder & Co.....	74 South street
*Wood, Payson & Colgate.....	64 Pine street
*O. Yamada and M. Fukui.....	58 Walker street

## BROKERS IN RAW SILK.

H. S. Allen.....	27 Greene street
*P. Busch.....	Cor. Grand and Mercer streets
*D. O'Donoghue & Co.....	51 Greene street
*Geo. M. Haywood.....	90 Franklin street
*Rowland Johnson.....	54 Beaver street
*B. Richardson & Son.....	5 Mercer street
*Charles F. Simes.....	46 Howard street



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# FRANKLIN INSTITUTE

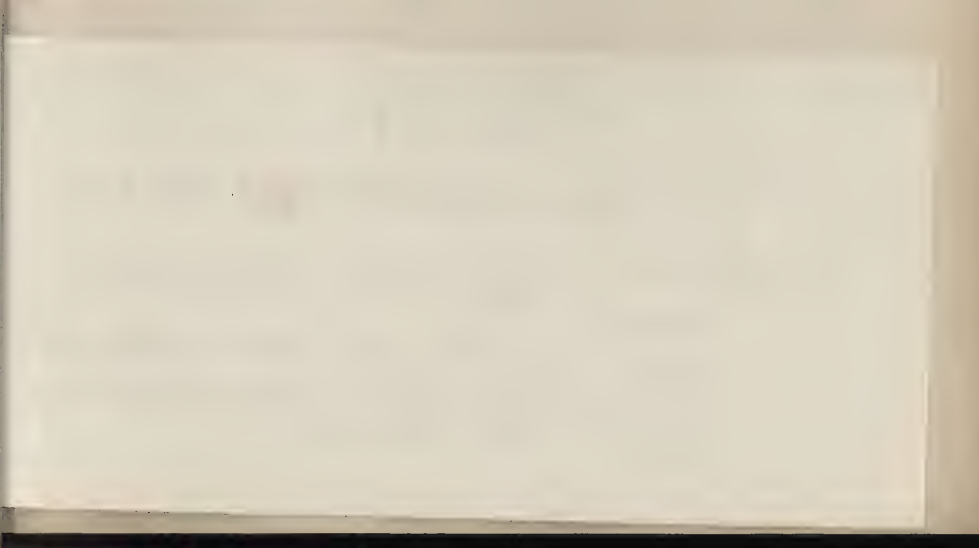
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## ERRATA.

On page 135, line 2, \

“ “ 122, line 34, } for “J. H. Hayden & Co.,” read J. H. Hayden & Son.

“ “ 109, line 17, )

“ “ 139, line 8, }  
“ “ 107, line 44, } for “Neuberger Braid Co.,” read Neuburger Braid Co.

“ “ 139, line 14, for “L. & H. Neuberger & Co.,” read L. & H. Neuburger & Co.

“ “ 149, line 7, } for 62 and 64 Worth Street (salesrooms of Herman Simon),

“ “ 108, line 17, } read 57-63 Greene Street.

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BUSINESS ANNOUNCEMENTS.

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## BUSINESS ANNOUNCEMENTS.

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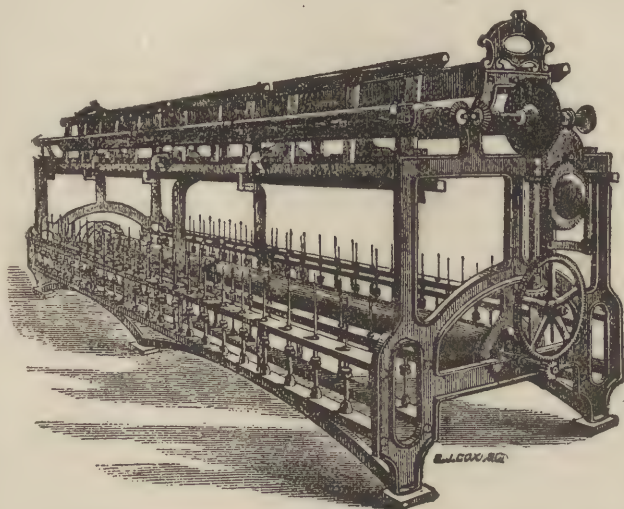
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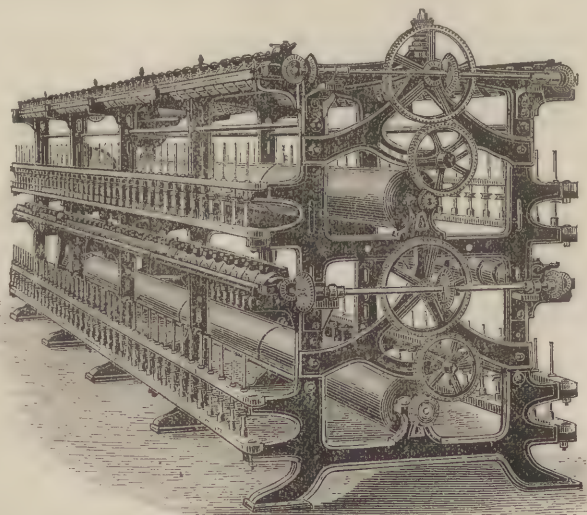
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**M. HEMINWAY & SONS' SILK COMPANY.**
**INTERNATIONAL EXHIBITION,  
PHILADELPHIA, 1876.**

The United States Centennial Commission has examined the Report of the Judges and accepted the following reasons, and decreed an award in conformity therewith.



PHILADELPHIA, Nov. 13, 1876.

**REPORT ON AWARDS.**

PRODUCT, SEWING SILK.

Name and Address of Exhibitor, M. HEMINWAY &amp; SONS' SILK CO.

The undersigned, having examined the product herein described, respectfully recommends the same to the United States Centennial Commission for Award for the following reasons:

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"PERFECT IN QUALITY OF MATERIAL, COLOR AND WORKMANSHIP."  
Signed, GEBHARD, Judge.

## APPROVAL OF GROUP JUDGES.

CHARLES LE BOUTILLIER,  
ELLIOTT C. COWDIN,A. BEHMER,  
HAYAMI,CHARLES J. ELLIS,  
A. DANINOS,JOHN G. NESSER,  
JOHN L. HAYES.

A true copy of the record.

Signed by FRANCIS A. WALKER,  
Chief of Bureau of Awards.

A. T. GOSHORN, Director General. J. R. HAWLEY, President. J. L. CAMPBELL, Secretary.  
Given by authority of the U. S. Centennial Commission.

**AMERICAN INSTITUTE EXHIBITION,**

NEW YORK, 1877.

NEW YORK, 1878.

NEW YORK, January 11th, 1878.

Copy of the Judges' Report in Department 3, Group 3, at the 46th Exhibition of the American Institute, held in the City of New York, October and November, 1877.

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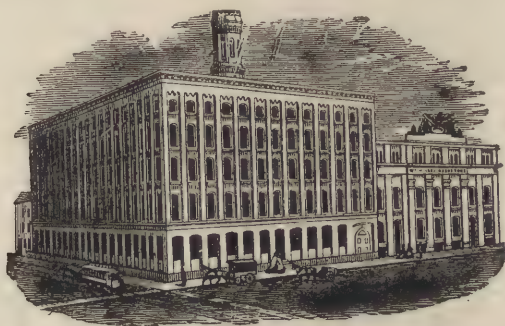
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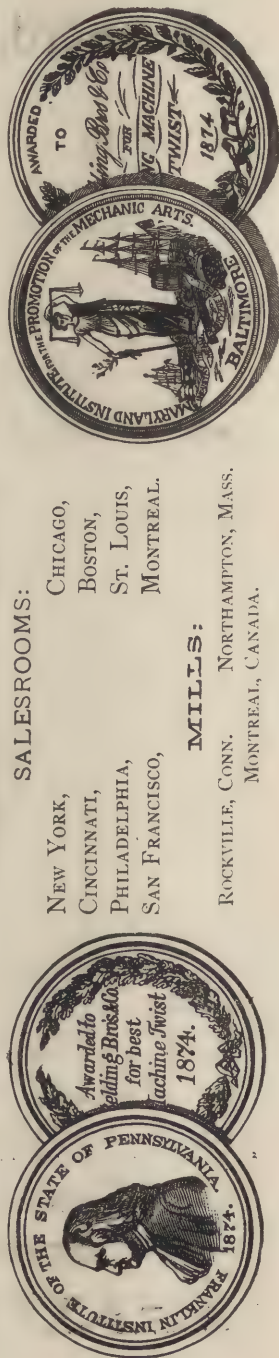
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Reserve, representing other claims and undivided profits,	228,965.26

## INVESTED AS FOLLOWS:

United States Bonds owned by Company, at market value,	\$1,064,250.00
State and other Bonds and Stocks owned by Company,	340,674.50
Cash on hand,	160,793.08
Demand Loans, (on Stocks and Bonds, worth \$381,317),	289,510.00
Mortgage Loans, (on Real Estate, worth \$1,997,125),	603,750.00
Real Estate owned by Company, office buildings in New York and Brooklyn,	690,000.00
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Interest and Rents accrued,	35,809.62

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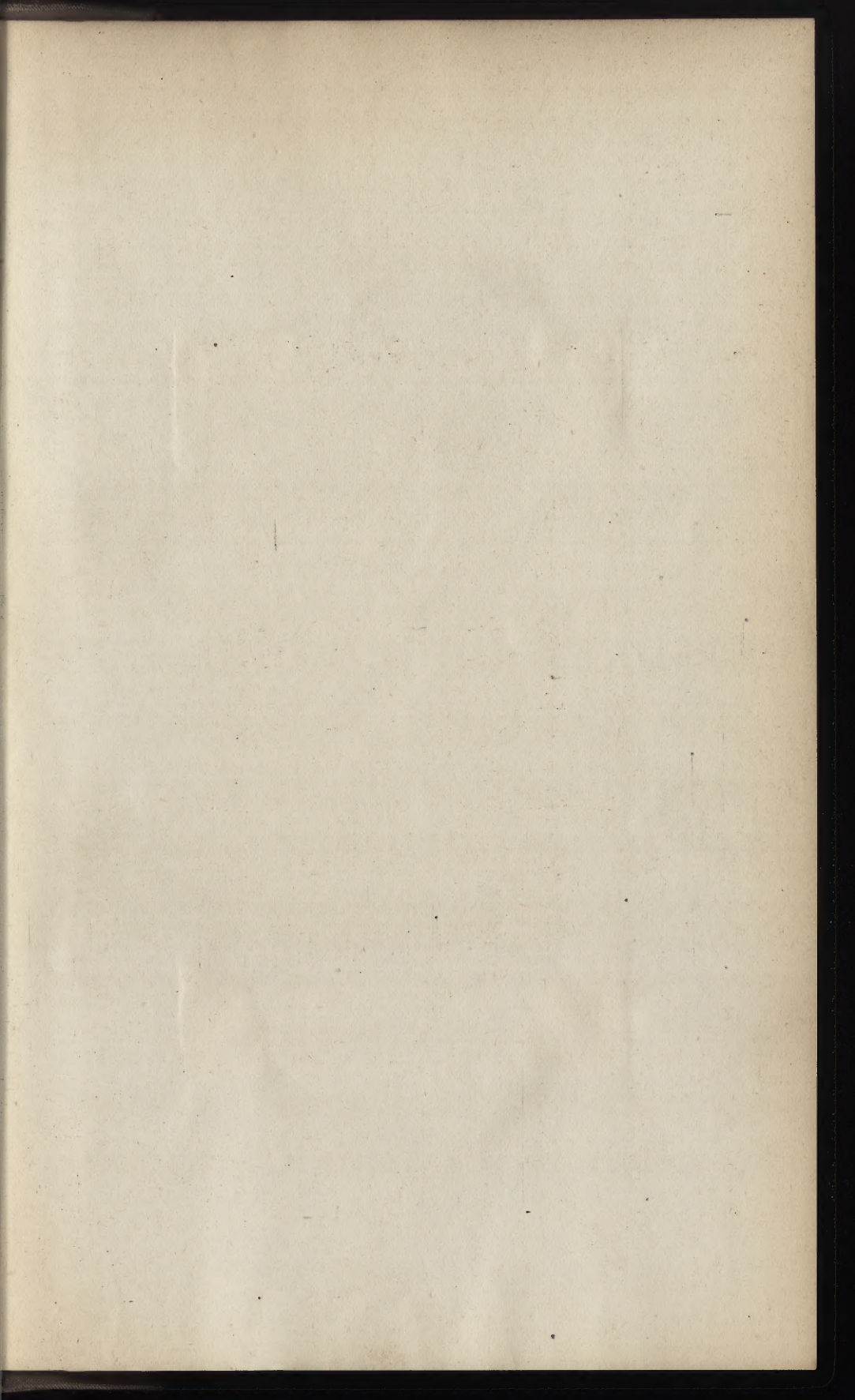
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